National Science Foundation

Bulletin

Vol. 36, No. 1, September 1986

NSF Announcements for September 1986

The NSF Bulletin provides monthly news about NSF programs, deadline dates, publications, meetings, and sources for more information. Publications listed in each current Bulletin may be requested on the Publications Order Form. Telephone numbers are given in parentheses; all numbers are the Washington, DC, area code 202, unless otherwise indicated.

The address of the National Science Foundation is 1800 G St., NW, Washington, DC 20550.

Fellowship Opportunities in Environmental Biology

Individuals seeking opportunities to perform full-time research in the fields of ecology, systematics, population genetics/population biology, or ecosystem studies, who have received their doctoral degrees within five years of Oct. 1, 1986, and are U.S. nationals, are invited to compete for a limited number of fellowship awards for 1987. These fellowships are for a duration of one or two years, and are fully portable. Projects incorporating arrangements for a change in research environment (e.g. to acquire new technical skills), a change in institutional affiliation, and/or work at a site abroad may be given preference. Innovative, cross-disciplinary emphases are also sought. The submission deadline is Oct. 1, 1986. Application materials are available from the Postdoctoral Fellowship Program, Biotic Systems and Resources (357-7332).

Doctoral Dissertation Research Proposals for the Division of Biotic Systems and Resources

Doctoral dissertation proposals submitted for consideration by the Division of Biotic Systems and Resources by May 1 will be considered for start dates of Oct. 15 or later in the same calendar year; proposals received by Oct. 15 will be considered for start dates of May 1 or later during the following calendar year. Each proposal should be submitted through regular university channels by the dissertation advisor acting on behalf of a graduate student, and may be submitted while the student is completing other requirements for the doctorate. Only students enrolled at U.S. institutions are eligible. Academic departments should limit the applications submitted to outstanding dissertation proposals with unusual financial requirements that cannot be met by the university.

The proposal should follow the format for individual research grants as described in the brochure *Grants for Scientific and Engineering Research* (NSF 83-57), except that the body of the proposal is limited to eight single-spaced pages. The body should include: (a) a description of the scientific significance of the work and the design of the project in sufficient detail to permit evaluation; (b) a presentation and interpretation of progress to date, if the research is already underway; (c) a statement of the items for which funds are requested and their estimated costs, with an explanation of the necessity for the research; and (d) a schedule for the research, including the date funds will be required. The original and eight copies should be sent to Data Support Services Section, NSF.

For further information, contact Dr. James Edwards, Division of Biotic Systems and Resources (357-7475).

NSF Ethics and Values Studies

A new announcement on priorities and procedures for submitting proposals to Ethics and Values Studies (EVS) is now available from NSF's Forms and Publications Unit. Request NSF 86-62. The next closing date for submitting preliminary proposals to EVS is Nov. 1, 1986. For further information, write or call EVS Coordinator Dr. Rachelle Hollander, Directorate for Biological, Behavioral, and Social Sciences (357-9894).

New Booklet Profiles Graduate Fellowship Applicants

The NSF has published a new booklet, "Profiles In Excellence," with information about the graduate fellowship program and brief biographical sketches of selected applicants in the 1985 competition who received awards or Honorable Mentions. The booklet illustrates the diversity of backgrounds, skills, and accomplishments for successful applicants, and is intended to assist potential applicants in evaluating their competitiveness. Potential applicants and individuals maintaining central reference resources are invited to request single copies by sending a self-addressed gummed label to Profiles, NSF, Forms and Publications Unit, Room 232, Wash., D.C. 20550.

Basic Research and Economic Competitiveness

NSF announces the availability of the publication, *Basic Research: The Key to Economic Competitiveness* by Mr. Erich Bloch, Director, National Science Foundation. The booklet summarizes recent trends in research, education, and economics, and makes the case once again that the nation cannot prosper without sustained investment in science and engineering research and education in our universities. Single copies of the booklet (NSF 86-21) may be requested on the Publications Order Form.

Waterman Award Nominations

The deadline for receipt of nominations for the 1987 Alan T. Waterman Award is Dec. 31, 1986. The Award, presented annually to an outstanding young scientist, mathematician, or engineer, will be announced and presented in May 1987. For further information and/or a copy of the guidelines for submission, contact Mrs. Lois Hamaty (357-7512).

Erich Bloch, Director
John Moore, Deputy Director

The **NSF Bulletin** is issued monthly (except July and August) to disseminate information on NSF programs, policies, and activities. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget through March 31, 1991. Editor: Doris Merida, Office of Legislative and Public Affairs (357-9498).

Office for Engineering Infrastructure Development Established

NSF's Directorate for Engineering announces the establishment of the Office for Engineering Infrastructure Development (OEID). The Office is responsible for developing and providing a Directorate-wide focus for activities which impact on one or more of the Divisions of the Directorate for Engineering and which will optimize the effective utilization of university, industry, and other resources, and for activities which will advance U.S. engineering through international cooperation.

Dr. William S. Butcher has been named Office Head of OEID and can be reached at 357-9834.

SRS Data Available on Diskettes

Data formerly published by the Division of Science Resources Studies (SRS) as Detailed Statistical Tables are now being issued on diskettes. The diskettes, suitable for use on IBM-compatible personal computers, are available to users in exchange for a blank diskette. The data sets are in "read only," ASCII format and require no software (the disk operating system (DOS) is all that is needed for access). Each set of diskettes includes the program (complete with "HELP" and table-printing instructions), technical notes, and the detailed statistical tables.

SRS contacts and data currently available on diskettes are listed below:

SRS Contact: Esther Gist (634-4673)
—Academic Science/Engineering: R&D Funds, FY 1984
—Academic Science/Engineering: Scientists and Engineers, January 1985
—Academic Science/Engineering: Graduate Enrollment and Support, Fall 1984
—Federal Support to Universities, Colleges, and Selected Nonprofit Institutions: FY 1984

SRS Contact: Vanessa Richardson (634-4636)
—Federal Funds for Research and Development: Fiscal Years 1984, 1985, and 1986, Volume XXXIV

SRS Contact: Melissa Lane (634-4664)
—Characteristics of Recent Science/Engineering Graduates: 1984
—U.S. Scientists and Engineers: 1984

Grant Opportunities for Engineering Research in Japan

NSF's Division of Electrical, Communications, and Systems Engineering in cooperation with the Division of International Programs announces grant opportunities in critical technology areas for junior engineering faculty to carry out cooperative research in Japan at leading industrial, government, or university research laboratories. Proposals are currently being considered in the area of III-V semiconductor materials and devices. Grant support will be a for a duration of two years, the first year in support of research in Japan, and the second year at the home U.S. institution. Engineering faculty at the assistant professor level holding full time tenure-track appointments at advanced-degree granting U.S. institutions are eligible. Target date for submission of proposals is Nov. 1, 1986.

For further information contact Dr. Lawrence Goldberg, Quantum Electronics, Waves, and Beams Program, Division of Electrical, Communications, and Systems Engineering (357-9618).

Program Deadlines and Target Dates for Proposals

The following listing gives the dates on which proposals for grants are due at NSF for the next three months. Further information may be obtained by contacting the NSF staff members listed for each entry. Brochures indicated in parentheses may be requested on the Publications Order Form, unless otherwise indicated. These dates are subject to change. NSF encourages proposals from minorities, women, and the handicapped.

The number and letter codes after some announcements refer to listings in the *Keyword Thesaurus*. They will be used by the research management offices of participating colleges and universities in an attempt to achieve more complete and efficient distribution of *NSF Bulletin* information to potential users.

Program Deadlines **include all programs for which proposals received after the cutoff date generally will be returned to the proposer.** ***Target Dates*** **include all programs for which proposals received after the cutoff date will be reviewed, although they may miss a particular panel meeting.**

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NSF programs not listed under "program deadlines" and "target dates" will accept proposals any time of the year. It takes six to nine months to process a proposal. For further information about the programs refer to ***Guide to Programs*** **(NSF 85-40).**

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BBS Biological, Behavioral, and Social Sciences

PROGRAM DEADLINES:

Oct. 1, 1986—

Fellowship Opportunities in Environmental Biology for New Ph.D.s. (Brochure NSF 85-38). Dr. W. Franklin Harris, Division of Biotic Systems and Resources (357-7332).

TARGET DATES:

Oct. 1, 1986—

Systematic Biology. (Brochure NSF 84-68). Dr. James Rodman, Division of Biotic Systems and Resources (357-9588). [P.T.34;K.W.1002011].

Population Biology and Physiological Ecology. (Brochure NSF 84-68). Dr. James Collins, Division of Biotic Systems and Resources (357-9728). [P.T.34;K.W.1007001,0413004].

Doctoral Dissertation Research in Biotic Systems and Resources. (Brochure NSF 83-71). Dr. James Edwards, Division of Biotic Systems and Resources (357-7475). [P.T.40;K.W.1002011,1002016,1007001].

Archaeometry Competition. (Brochure NSF 84-45). Dr. John Yellen, Division of Behavioral and Neural Sciences (357-7804). [P.T.34;K.W.1003002].

Nov. 1, 1986—

Cellular Physiology. (Brochure NSF 85-11). Dr. Maryanna Henkart or Dr. Barbara Zain, Division of Cellular Biosciences (357-7377). [P.T.34;K.W. 1003002].

Cell Biology. (Brochure NSF 85-11). Dr. Edward Berger or Dr. Eve Briles, Division of Cellular Biosciences (357-7474). [P.T.34;K.W.1003002].

Developmental Biology. (Brochure NSF 85-11). Dr. Joseph Mascarenhas, or Dr. Judith Plesset, Division of Cellular Biosciences (357-7989). [P.T.34;K.W. 1003002].

Regulatory Biology. (Brochure NSF 85-11). Dr. Stephen Bishop or Dr. Elvira Doman, Division of Cellular Biosciences (357-7975). [P.T.34;K.W.1003002].

Eukaryotic Genetics. (Brochure NSF 85-11). Dr. DeLill Nasser, Division of Cellular Biosciences (357-0112). [P.T.34;K.W.1003002].

CISE Computer and Information Science and Engineering

PROGRAM DEADLINES:

Sept. 15, 1986—

Coordinated Experimental Research. (Brochure NSF 85-42). Limited to Ph.D. degree-granting institutions with research programs in computer science and engineering. Dr. Harry Hedges or Dr. Robert Minnick, Division of Computer Research (357-7349). [P.T.04,18,24;K.W.1004000,1004003].

TARGET DATES:

Nov. 1, 1986—

Theoretical Computer Science. Dr. Thomas Head, Division of Computer Research (357-7375).

Software Systems Science. Dr. Thomas Keenan, Division of Computer Research (357-7375).

Software Engineering. Dr. Bruce Barnes, Division of Computer Research (357-7375).

Intelligent Systems. Dr. Y.T. Chien, Division of Computer Research (357-7345).

Computer Systems Design. Dr. John Lehmann, Division of Computer Research (357-7349).

Special Projects. Mr. Lawrence Oliver, Division of Computer Research (357-7375).

ENG Engineering

PROGRAM DEADLINES:

Sept. 15, 1986—

Engineering Research Centers. Division of Cross-Disciplinary Research (357-9707).

GEO Geosciences

PROGRAM DEADLINES:

Sept. 1, 1986—

Oceanographic Instrumentation. (Brochure NSF 84-63). "Instructions for Preparation of Proposals Requesting Support for Oceanographic Facilities." Mr. H. Lawrence Clark, Division of Ocean Sciences (357-7837). [P.T.18,34;K.W.1008003].

Shipboard Scientific Support Equipment. (Brochure NSF 84-63). Instructions for Preparation of Proposals Requesting Support for Oceanographic Facilities. Dr. Richard West, Division of Ocean Sciences (357-7837). [P.T.18,34;K.W.1008003].

Arctic Research. Mr. Guy Guthridge, Division of Polar Programs (357-7766). [P.T.34;Loc.0111001;K.W.1000000,0600000].

TARGET DATES:

Oct. 1, 1986—

Ocean Drilling Program. Dr. Garrett Brass, Division of Ocean Sciences (357-9849).

Biological Oceanography, Chemical Oceanography, Marine Geology and Geophysics, Physical Oceanography. Dr. Polly Penhale, Division of Ocean Sciences (357-7924).

MPS Mathematical and Physical Sciences

PROGRAM DEADLINES:

Nov. 1, 1986—

Regional Conferences in Mathematical Sciences. Dr. Alvin Thaler, Division of Mathematical Sciences, NSF (357-9764) or Dr. Marcia Sward, Mathematical Association of America, 1529 18th St., NW, Wash., DC 20036 (293-1170). [P.T.42;K.W.1010000].

Nov. 15, 1986—

Mathematical Sciences Postdoctoral Research Fellowships. For applications or information contact the Special Projects Program, Division of Mathematical Sciences (357-9764). [P.T.22;K.W. 1010000].

TARGET DATES:

Oct. 12, 1986—

Mathematical Sciences. Proposals for disciplinary research projects with requested starting dates on/or before July 1, 1987. Programs in Classical Analysis, Modern Analysis, Geometric Analysis, Topology and Foundations, Algebra and Number Theory, Applied Mathematics, and Statistics and Probability. Division of Mathematical Sciences (357-9764).

Nov. 1, 1986—

Condensed Matter Theory. Proposals for disciplinary research projects, with requested starting dates on/or before Nov. 1, 1986. Dr. William Clinton or Dr. Purusottam Jena, Division of Materials Research (357-9737).

Low Temperature Physics. Proposals for disciplinary research projects, with requested starting dates on/or before Nov. 1, 1986 Dr. William Glaberson, Division of Materials Research (357-9787).

Solid State Chemistry. Proposals for disciplinary research projects, with requested starting dates on/or before Nov. 1, 1986. Dr. John Tossell, Division of Materials Research (357-9787).

Solid State Physics. Proposals for disciplinary research projects, with requested starting dates on/or before Nov. 1, 1986. Dr. Joseph Trivisonno or Dr. Paul Chu, Division of Materials Research (357-9737).

Metallurgy, Polymers, and Ceramics. Dr. Robert Reynik, Division of Materials Research (357-9789).

Materials Research Groups Program. Division of Materials Research, Dr. Louis Toda (357-0114).

SEE Science and Engineering Education

PROGRAM DEADLINES:

Nov. 1, 1986—

NATO Postdoctoral Fellowships in Science. (Brochure NSF 85-31). Dr. Michael Frodyma, Division of Research Career Development (357-9466).

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Nov. 7, 1986—

College Science Instrumentation Program (CSIP). (Brochure NSF 86-23). Limited to science and engineering departments in four-year colleges or universities offering instruction in the sciences and engineering leading to the bachelor's degree that do not offer the doctoral degree in any of the NSF-supported fields of science and engineering. Office of College Science Instrumentation (357-7051).

Nov. 15, 1986—

Graduate Research Fellowships. (Brochure NSF 85-35). Dr. Douglas Chapin, Division of Research Career Development (357-7856). For copies of the announcement and application materials, contact the Fellowship Office, National Research Council, 2101 Constitution Ave., NW, Wash., DC 20418 (334-2872).

Minority Graduate Research Fellowships. (Brochure NSF 85-36). Dr. Douglas Chapin, Division of Research Career Development (357-7696). For copies of the announcement and application materials, contact the Fellowship Office, National Research Council, 2101 Constitution Ave., NW, Wash., DC 20418 (334-7856).

TARGET DATES:

Sept. 15, 1986—

Research in Teaching and Learning. (Brochure NSF 85-10). Dr. Raymond Hannapel, Division of Materials Development, Research and Informal Science Education (357-7071).

Oct. 1, 1986—

Instructional Materials Development. (Brochure NSF 85-10). Ms. Mary Kohlerman, Division of Materials Development, Research and Informal Science Education (357-7066).

Oct. 15, 1986—

Teacher Preparation. (Brochure NSF 85-67). Dr. Vincent Lunetta, Division of Teacher Preparation and Enhancement (357-7074).

STIA Scientific, Technological, and International Affairs

PROGRAM DEADLINES:

Sept. 15, 1986—

U.S.-United Kingdom Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-7554). [P.T.34,42, 48;Loc.0112143; K.W.0400000,0600000,1000000].

U.S.-Austria Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700). [P.T.34,42,48; Loc.0112007;K.W.0400000,0600000,1000000].

U.S.-Federal Republic of Germany Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700). [P.T.34,42,48;Loc.0112050;K.W.0400000, 0600000,1000000].

Cooperative Science Activities with Denmark, Iceland, the Netherlands, and Norway. (Brochure NSF 83-73). Semi-annual deadline for proposal for joint research and seminars. Division of International Programs (357-9700). [P.T.34,42,48; Loc.0104004,0112096].

U.S.-Finland Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700). [P.T.34,42,48;Loc.0112044, K.W.0400000,0600000, 1000000].

U.S.-Spain Cooperative Program in Basic Sciences. (Brochure NSF 84-10). Proposals for cooperative research, joint seminars, and exchange of scientists. Division of International Programs (357-7554). [P.T.26,34,42,48;Loc.0112125,K.W. 0400000,0600000,1000000].

U.S.-Switzerland Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700). [P.T.34,42,48; Loc.0112131;K.W.0400000,0600000,1000000].

U.S.-Sweden Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700). [P.T.34,42,48; Loc.0112130; K.W.0400000,0600000,1000000].

Oct. 1, 1986—

U.S.-New Zealand Cooperative Science. Proposals for projects beginning no sooner than July 1 of the next calendar year. Division of International Programs (357-9558). [P.T.34,42,48;Loc.0112097; K.W.1000000].

U.S.-Australia Cooperative Science. For visits by Australians to the U.S. [i.e., no cost to NSF] only, for requested effective dates falling between July 1 and Dec. 31, 1986. Division of International Programs (357-9558). [P.T.34,42,48; Loc.0112006; K.W.0400000,0600000,1000000].

NSF Visiting Professorships for Women. (Brochure NSF 85-6). Program requires that the applicant has a Ph.D. in a field of research supported by NSF and not hold a salaried position, or the promise of one, at the proposed host institution. Dr. Margrete Klein or Ms. Carol Erlebach, Division of Research Initiation and Improvement (357-7734). [P.T.06;K.W.0403018,0600000, 1000000].

Nov. 1, 1986—

U.S.-Industrialized Countries Program for the Exchange of Scientists and Engineers. Program supports long-term visits (6-15 months) of a postdoctoral or sabbatical nature to industrialized countries of Western Europe or the Pacific. Awards will be announced the following spring. For further information contact the Division of International Programs (357-7554).

U.S.-Latin America and Caribbean Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposals to counterpart agency. Ms. Christine French, Division of International Programs (357-9563). [P.T.34,42,48; Loc.0110007; K.W.1000000].

U.S.-Venezuela Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Ms. Christine French, Division of International Programs (357-9563). [P.T.34,42, 48; Loc.0112147; K.W.0400000,0600000,1000000].

U.S.-Mexico Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Ms. Christine French, Division of International Programs (357-9563). [P.T.34,42, 48;Loc. 0112089;K.W.0400000,0600000,1000000].

U.S.-Mexico Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Mr. Dimas Chavez, Division of International Programs (357-9563). [P.T.34,42,48; Loc.0112089;K.W.0400000, 0600000,1000000].

U.S.-Argentina Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Mr. Dimas Chavez, Division of International Programs (357-9563). [P.T.34,42, 48;Loc.0112005; K.W.0400000,0600000,1000000].

Nov. 15, 1986—

U.S.-Israel Binational Science Foundation (BSF). Proposals should not be

submitted to NSF; send to BSF in Jerusalem. Division of International Programs (357-7613).

TARGET DATES:

Sept. 1, 1986—

Science in Developing Countries. Sub-Saharan Africa: Dr. Osman Shinaishin (357-9550); North Africa and Turkey: Mr. Francis Field (357-9402); South and West Asia: Dr. Osman Shinaishin (357-9537); and Latin America and Caribbean: Ms. Christine French (357-9563), Division of International Programs. [P.T.34,48;Loc. 0113003; K.W.1000000,0400000,0600000].

U.S.-East Asia Cooperative Science. (Brochure NSF 83-50). Indonesia, Malaysia, Singapore, Thailand. Dr. Gordon Hiebert, Division of International Programs (357-9537). [P.T.34,42,48;Loc.0112108: 0600000,1000000].

Nov. 1, 1986—

U.S.-Yugoslavia Cooperative Science. Cooperative research projects under the auspices of the U.S.-Yugoslavia Joint Board on Scientific and Technological Cooperation. Proposals should not be submitted to the NSF, although information copies are appreciated; instead, jointly developed proposals are submitted by the Yugoslav investigator to FAISECTC (the Federal Administration for Scientific, Educational, Cultural, and Technical Cooperation in Belgrade). Dr. Gerson Sher, Division of International Programs (357-7494).

Nov. 15, 1986—

NSF-NATO Program for International Academic-Industrial Exchanges of Scientists and Engineers (Double Jump). (Brochure NSF 85-5). Semi-annual target date. Research visits to academic, industrial, and government research institutions in NATO countries. Six to twelve months duration. Mr. Henryk Uznanski, Division of International Programs (357-7554).

NSF-The Vatican Cooperative Science. (Brochure NSF 83-73). Semi-annual target date. Research participation and scientific workshops within the framework of regional activities. Mr. Henryk Uznanski, Division of International Programs (357-7554).

POSITIONS OPEN

Applicants for the following positions should submit resumes including current salary to NSF, Personnel Administration Branch, Room 212, 1800 G Street, N.W.,Wash., DC 20550. Attn: Catherine Handle, 357-7840. Hearing impaired individuals should call: TDD 357-7492. NSF is an Equal Opportunity Employer.

These positions are excepted from the competitive civil service and will be filled on a permanent, one- or two-year rotational or temporary basis. The type of appointment is indicated in the job announcements. The per annum salary is as follows:

- **Program Director**-per annum salary ranges from $45,000 to $70,000*
- **Associate Program Director**—per annum salary ranges from $40,000 to $60,000
- **Assistant Program Director**—per annum salary ranges from $35,000 to $50,000

*Salary currently limited by statute to $68,700.

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- **NSF's Division of Mathematical Sciences** is seeking qualified applicants for positions which periodically become available. Incumbents will be responsible for the planning, coordination and management of basic research activities primarily through Federal grants and contracts to academic institutions and non-profit, non-academic research institutions. A broad, general knowledge of the field and some administrative experience are required. For technical information about the positions, contact Dr. John Polking, Division Director, 357-9669.

- **NSF's Division of Chemistry** is seeking applicants with backgrounds in organic, inorganic, physical, and analytical chemistry for positions which periodically become available. Individuals who would like to be considered in the summer of 1987 should apply to Dr. Edward Hayes, Director, Division of Chemistry, 357-7947.

Applicants for the following position should submit applications to NSF, Executive Personnel and Development Section, Room 208, 1800 G St., NW., Wash., DC 20550, Attn: Margaret Cademartori, 357-7601.

- **NSF's Division of Computer Research** is seeking qualified applicants for the position of Deputy Division Director. Appointment to this Senior Executive Service position may be on a career or a one- to three-year limited term basis with a salary ranging from $61,296 (ES-1) to $68,700 (ES-4). Alternatively, assignment may be made under the provisions of the Intergovernmental Personnel Act. Applicants must have a Ph.D. or equivalent professional experience in computer science or related field. Recognized professional standing and substantial research administrative experience are also essential. Applicants should contact Margaret Cademartori on 357-7601 (hearing impaired individuals may call TDD 357-7492) to request vacancy announcement containing complete qualification requirements and application procedures. Applications must be received by September 30, 1986.

STAFF CHANGES

Robert Bach to Program Officer, Chemical Dynamics Program, Division of Chemistry, 357-7856.

C. Gordon Bell to Assistant Director, Directorate for Computer and Information Science and Engineering, 357-7936.

Edward Berger to Program Director, Cell Biology Program, Division of Cellular Biosciences, 357-7474.

Stephen B. Bishop to Program Director, Regulatory Biology Program, Division of Cellular Biosciences, 357-7975.

Thomas A. Bryson to Program Officer, Synthetic, Organic and Natural Product Chemistry, Division of Chemistry, 357-7501.

William S. Butcher to Head, Office for Engineering Infrastructure Development, 357-9834.

Bernard Chern to Director, Division of Computer and Information Engineering, 357-7573.

William L. Clinton to Program Director, Condensed Matter Theory Program, Division of Materials Research, 357-9737.

Ted E. DeLaca Head, Polar Science Section, Division of Polar Programs, 357-7894.

Karl A. Erb to Program Director, Nuclear Physics Program, Division of Physics, 357-7979.

Wagih Z. Fam to Program Director,

Instrumentation, Sensing and Measurement Program, Division of Electrical, Communications and Systems Engineering, 357-9618.

Susan Finger to Acting Deputy Division Director, Design, Manufacturing and Computer Intergrated Engineering, in addition to her regular responsibilities as Program Director, Design Theory and Methodology, 357-7676.

Nancy Flournoy to Program Director, Statistics and Probability Program, Division of Mathematical Sciences, 357-9764.

William Glaberson to Program Director, Low Temperature Physics Program, Division of Materials Research, 357-9787.

Paul A. Goodey to Program Director, Geometric Analysis Program, Division of Mathematical Sciences, 357-9764.

T. Kenneth Gustafson to Acting Section Head, Emerging Engineering Systems, Division of Electrical, Communications and Systems Engineering, in addition to his regular responsibilities as Program Director, Lightwave Technology, 357-9555.

Jacob E. Hautoluoma to Program Associate, Industrial Countries Section, Division of International Programs, 357-7554.

Purusottom Jena to Program Director, Condensed Matter Theory Program, Division of Materials Research, 357-9737.

Timothy Lawler to Program Director, Systematic Biology Program, Division of Biotic Systems and Resources, 357-9588.

Arie Y. Lewin to Program Director, Decision and Management Sciences Program, Division of Social and Economic Science, 357-7569.

Craig S. Lingle to Program Manager, Glaciology Program, Division of Polar Programs, 357-7894.

Jerrold W. Maben to Program Director, Teacher Enhancement Program, Division of Teacher Preparation and Enhancement, 357-7539.

Jerry M. Melillo to Program Director, Ecosystems Studies Program, Division of Biotic Systems and Resources, 357-9596.

Richard W. Miksad to Program Director, Fluid Dynamics and Hydraulics Program, Division of Mechanics, Structures, and Materials Engineering, 357-9542.

Yashaswini Mittal to Program Director, Statistics and Probability Program, Division Mathematical Sciences, 357-9764.

Polly Ann Penhale to Program Director, Special Programs Section, Division of Ocean Sciences, 357-7312.

Marcus M. Rhoades to Associate Program Director, Prokaryotic Genetics Program, Division of Molecular Biosciences, 357-9687.

David E. Schindel to Associate Program Director, Systematic Biology Program, Division of Biotic Systems and Resources, 357-9588.

Susan P. Snyder to Program Director, Science and Mathematics Education, Networks, Division of Teacher Preparation and Enhancement, 357-7078.

Raymond N. Sombrotto to Assistant Program Director, Biological Oceanography Program, Division of Ocean Sciences, 357-9600.

Arnold A. Strassenburg to Division Director, Teacher Preparation and Enhancement, 357-7073.

Brian A. Tinsley to Program Director, Aeronomy Program, Division of Atmospheric Sciences, 357-7619.

John A. Tossell to Program Director, Solid State Chemistry Program, Division of Materials Research, 357-9787.

William T.H. van Oers to Program Director, Intermediate Energy Nuclear Physics Program, Division of Physics, 357-7979.

Frederic Yui-Ming Wan to Program Director Applied Mathematics Program, Division of Mathematical Sciences, 357-9764.

Donat G. Wentzel to Program Director, Stars and Stellar Evolution Program, Division of Astronomical Sciences, 357-7622.

Edward Zapolski to Associate Program Director, Biological Instrumentation Program, Division of Molecular Biosciences, 357-7652.

Herman B. Zimmerman to Program Manager, Polar Earth Sciences Program, Division of Polar Programs, 357-7894.

September 1986 Publications Order Form

Single copies of the following publications are available by checking appropriate boxes. This Order Form and requests for other publications should be sent to Forms and Publications Unit, Room 232, National Science Foundation, 1800 G St., N.W., Washington, DC 20550.

- ☐ NSF 80-52 U.S.-Latin America and Caribbean Cooperative Science.
- ☐ NSF 82-82 Guidelines for Chemical Instrumentation Proposals.
- ☐ NSF 83-19 Biological Instrumentation.
- ☐ NSF 83-50 U.S.-East Asia Cooperative Science.
- ☐ NSF 83-57 Grants for Scientific and Engineering Research.
- ☐ NSF 83-58 Science in Developing Countries.
- ☐ NSF 83-71 Doctoral Dissertation Research in Biotic Systems and Resources.
- ☐ NSF 83-73 Cooperative Science Programs with Western Europe.
- ☐ NSF 84-2 Grants and Awards (NSF), FY 83.
- ☐ NSF 84-10 U.S.-Spain Cooperative Program in Basic Sciences.
- ☐ NSF 84-20 Scholars Awards in History and Philosophy of Science.
- ☐ NSF 84-45 Anthropology Program Flyer-Archaeometry Competition.
- ☐ NSF 84-51 Engineering Research Equipment Grants.
- ☐ NSF 84-62 Facilitation Awards for Handicapped Scientists and Engineers.
- ☐ NSF 84-63 Instructions for Preparation of Proposals Requesting Support for Oceanographic Facilities.
- ☐ NSF 84-68 Biotic Systems and Resources (Flyer).
- ☐ NSF 84-72 Behavioral and Neural Sciences (Flyer).
- ☐ NSF 85-1 FY 84 NSF Annual Report.
- ☐ NSF 85-5 NSF-NATO Program for International Academic-Industrial Exchanges of U.S. Scientists and Engineers (Double-Jump).
- ☐ NSF 85-6 NSF Visiting Professorships for Women.
- ☐ NSF 85-9 Teacher Enhancement and Informal Science Education.
- ☐ NSF 85-10 Materials Development and Research.
- ☐ NSF 85-11 Division of Cellular Biosciences (Flyer).
- ☐ NSF 85-31 NATO Postdoctoral Fellowships in Science.
- ☐ NSF 85-35 Graduate Research Fellowships.
- ☐ NSF 85-36 Minority Graduate Research Fellowships.
- ☐ NSF 85-37 Director's Statement, FY 84 NSF Annual Report.
- ☐ NSF 85-38 Fellowship Opportunities in Environmental Biology for New Ph.Ds.
- ☐ NSF 85-40 FY 86 Guide to Programs.
- ☐ NSF 85-42 Coordinated Experimental Computer Science Research.
- ☐ NSF 85-57 U.S.-Industrialized Countries Program for the Exchange of Scientists and Engineers.
- ☐ NSF 85-66 Instrumentation for Materials Research Program Guidelines.
- ☐ NSF 85-67 Middle School Science and Math Teachers.
- ☐ NSF 86-1 NSF Annual Report, FY 85.
- ☐ NSF 86-3 Division of Social and Economic Science (Flyer).
- ☐ NSF 86-18 Publications of the National Science Foundation.
- ☐ NSF 86-21 Basic Research: The Key to Economic Competitiveness.
- ☐ NSF 86-22 Presidential Young Investigators Awards.
- ☐ NSF 86-23 College Science Instrumentation Program.
- ☐ NSF 86-24 Directory of Supported Teacher Enhancement Projects.
- ☐ NSF 86-27 Directory of SEE Awards Oct. 1, 1983—Sept. 30, 1985.
- ☐ NSF 86-62 Ethics and Values Studies.
- ☐ NSB 86-100 Undergraduate Science, Mathematics, and Engineering Education.

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TITLE _____

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WASHINGTON, D.C. 20550

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14/2

National Science Foundation

Bulletin

Vol. 14, No. 2, October 1986

NSF Announcements for October 1986

The NSF *Bulletin* provides monthly news about NSF programs, deadline dates, publications, meetings, and sources for more information. Publications listed in each current *Bulletin* may be requested on the Publications Order Form. Telephone numbers are given in parentheses; all numbers are the Washington, DC, area code 202, unless otherwise indicated.

The address of the National Science Foundation is 1800 G St., NW, Washington, DC 20550.

Remote Access to Science Resources Studies Data

The Division of Science Resources Studies (SRS) announces the establishment of the SRS Remote Bulletin Board System (RBBS), a service of the NSF providing up-to-date information on financial and human resources for science and engineering activities. It contains comprehensive statistical tabulations, brief narrative reports on current studies, and announcements of available publications.

The SRS RBBS is available to anyone with a personal computer equipped with a modem. The "host" computer is a personal computer. The system answers the telephone at 300 baud, no parity, eight data bits (XMODEM), and one stop bit. We suggest using 1200 baud if you have that capability. The host computer will automatically adjust to the baud rate that you are using. The phone number is 634-1764.

The SRS RBBS is menu-driven and includes instructions regarding both the structure and use of the system. The textual BULLETINS can be viewed while on the system. The statistical tabulations or FILES must be downloaded to the users' computer for viewing. The FILES are available in ASCII or LOTUS 1-2-3 format. The SRS RBBS currently contains the following data:

- —Federal Funds for Research and Development: Fiscal Years 1984, 1985, and 1986 (ASCII and LOTUS 1-2-3)
- —Scientific and Engineering Expenditures at Universities and Colleges: FY 1984 (ASCII)
- —Scientific and Engineering Personnel Employed at Universities and Colleges: January 1985 (ASCII)
- —Graduate Enrollment and Support in Science/Engineering: Fall 1984 (ASCII)
- —Federal Support to Individual Universities, Colleges, and Selected Nonprofit Institutions: FY 1984 (ASCII)
- —Characteristics of Recent Science/Engineering Graduates: 1984 (ASCII)
- —Scientists, Engineers, and Technicians in Manufacturing Industries: 1983 (ASCII)
- —Employment and Demographic Characteristics: U.S. Scientists and Engineers: 1984 (ASCII)
- —International Comparisons of Science and Technology Data (LOTUS 1-2-3)
- —Trends in National Patterns of Science and Technology Resources Data (LOTUS 1-2-3)

Additional data will be provided through the SRS RBBS as it becomes available. Your comments and suggestions for improvements to the system are welcome. For assistance in accessing SRS RBBS, call 634-4636.

NSF Form 1225 Must Be Submitted With All Proposals

Important Notice No. 99, dated Dec. 18, 1985, announced the necessity for NSF to collect data on gender, race, ethnic origin, and handicap of proposers and principal investigators/co-principal investigators. To gather the information needed for this important task, NSF requires that "Information About Principal Investigators/Project Directors" (NSF Form 1225) accompany all proposals.

The form *must* be received before proposal review will be initiated. Copies of NSF Form 1225 and Important Notice No. 99 are available from Forms and Publications, Room 232, NSF.

Science Resources Studies Highlights:

"Output of Science Engineering Doctorates Stable in 1985, But Non-U.S. Citizens and Women Increase Their Shares of the Total" (NSF 86-308).

Copies of *Highlights* are available free from the Division of Science Resources Studies (634-4622).

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Indo-U.S. Science and Technology Initiative

The Division of International Programs announces the availability of a 100-page progress report entitled "Research Patterns Half A World Apart: Indo-U.S. Science and Technology Initiative Advances Understanding in Health, Agriculture, Weather, and Materials." The report was prepared by NSF as Executive Agent for the Indo-U.S. Science and Technology Initiative (STI), implemented by the President in October 1983. Information on four areas of ongoing basic research are highlighted in the report: *Health*—with focuses on blindness prevention, immunology of infectious disease, and safe contraceptives; *Agriculture*—biological nitrogen fixation, conventional fertilizer efficiency, and reforestation; *Monsoon*—the development of numerical models for short-range prediction and basic studies of monsoon dynamics; basic research in *Solid State Science and Engineering*—a relatively new program with a concentration in such areas as photovoltaics and minerals engineering.

Single copies of the report (NSF 86-49) may be obtained from the Forms and Publications Unit, Rm. 232.

Presidential Young Investigators 1986 Awards

A new publication, *Presidential Young Investigators 1986 Awards,* is now available from NSF's Division of Research Career Development. This publication is aimed at industrial organizations and other potential contributors of matching funds; it is intended to introduce the awardees to potential industry sponsors and to promote awareness and understanding of this program in the private sector.

(Continued on Page 2)

NS 1.31

The publication outlines the major terms and conditions of the awards and highlights those areas which are likely to be of interest in awardee/industry interactions; presents biographical information and research interests of the 1986 PYI awardees as well as condensed information on the active 1985 and 1984 awardees; and acknowledges those industrial organizations providing matching support for the 1985 PYI awards. Request copies from the Division of Research Career Development, Science and Engineering Education (357-7536).

Physics Advisory Committee Meeting

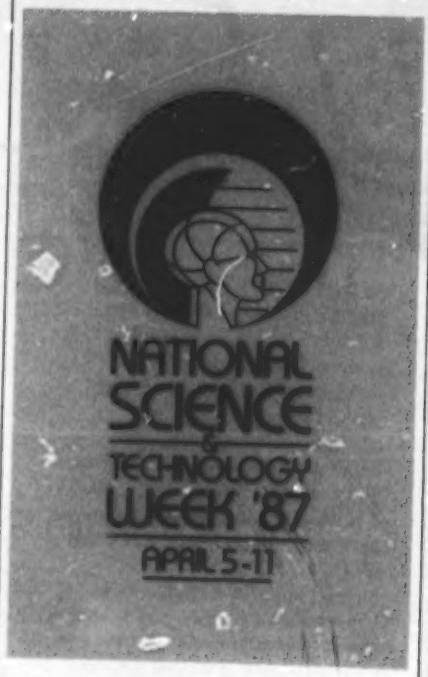
The NSF Advisory Committee for Physics will meet Oct. 23-24, 1986, in Room 540 at NSF. For further information contact Dr. Don Aufenkamp, Division of Physics (357-7611).

Field Observing Facility Advisory Panel to Meet

The Advisory Panel for the Field Observing Facility (FOF) of the National Center for Atmospheric Research (NCAR) will meet in April 1987 to consider requests for field observing support. The FOF operates one S-band (10 cm) and two C-band (5.5 cm) Doppler radars, and 60 Portable Automated Mesonet (PAM) stations with associated field base stations. The Global Atmospheric Measurements Program (GAMP) operates nine Cross-chain LORAN Atmospheric Sounding Systems (CLASS), an upper air system. The advisory panel will also consider requests for use of the S-band (10 cm) CHILL radar operated by the Illinois State Water Survey (ISWS) which may be available to the user community in the Spring of 1987.

Requests for use of facilities from Oct. 1, 1987, through Oct. 31, 1988, should be submitted now. Scientists requesting NCAR field observing support within the context of NSF grants should include those requirements in their NSF proposals.

In order to be considered by the Panel at the April meeting, radar and PAM requests should be submitted by Mar. 1, 1987, and addressed to Mr. Brant Foote, Manager, Field Observing Facility, National Center for Atmospheric Research, P.O. Box 3000, Boulder, CO 80307. CLASS requests should be submitted by Mar. 1, 1987, to Mr. Vincent Lally, Manager, Global Atmospheric Measurements Program, at the same address. Inquiries and proposals for use of the CHILL radar system should be directed to Mr. John Vogel, ISWS, 2204 Griffith Dr., Champaign, IL 61820 (217/333-4261).



NCAR Research Aviation Facility

The Advisory Panel for the Research Aviation Facility (RAF) of the National Center for Atmospheric Research (NCAR) will meet in Boulder, CO in April 19[illegible] to consider requests for flight support using NCAR's aircraft instrumented for atmospheric research during the period Oct. 1987 through Apr. 1988.

The RAF advisory panel is composed of atmospheric scientists from universities, government agencies, and NCAR. They ordinarily meet twice each year, in Apr. and Oct., to consider the scheduling of NCAR aircraft. Requests for NCAR flight support for programs within the context of NSF grants should include a copy of the NSF proposal.

The NCAR Research Aviation Facility operates three aircraft in support of field projects in the areas of air chemistry, cloud physics, air motion (including mass flow and turbulent flux measurements), radiation, physical oceanography and air-sea interaction, and other programs within the atmospheric sciences. The following three aircraft are available: the Super King Air, the NCAR Sabreliner, and the Electra.

In order to be considered by the panel at the April meeting in 1987, requests must be submitted in completed form not later than Feb. 13, 1987, to the Manager, Research Aviation Facility, NCAR, P.O. Box 3000, Boulder, CO 80307.

Additional information is available from the Research Aviation Facility (303/497-1036).

Guidelines for Preparation of Proposals For the Ecosystem Studies Program

Proposals for the Ecosystem Studies program should be limited to 60 double-spaced pages for the body of the research proposition (i.e., introduction, literature review, hypothesis exposition, methods, project execution, and management plan). Appendices of supporting materials (e.g., bibliographies, budgets, professional resumes, catalogs of extant information, and related research efforts) should be limited to 40 single-spaced pages. Proposals should be printed on one side only, numbered at the bottom, and secured only in the top left corner.

Submissions for studies involving only one or two investigators/disciplines must comply with the limitations (i.e., 30 double-spaced pages of text) expressed in "Grants for Scientific and Engineering Research" (NSF 83-57). For this class of proposals, the total pages for appendices must not exceed 15 single-spaced pages. General format requirements of the GSER brochure (NSF 83-57) apply to all proposals.

Proposals not adhering to these guidelines will be returned. For further information contact Dr. James Callahan, Ecosystem Studies Program (357-9596).

Bulletin

NATIONAL SCIENCE FOUNDATION, WASHINGTON, D.C. 20550

Erich Bloch, Director
John Moore, Deputy Director

The **NSF Bulletin** is issued monthly (except July and August). Use of funds for printing this periodical has been approved by the Office of Management and Budget through March 31, 1991.

Editor: Doris Merida, Office of Legislative and Public Affairs (357-9498).

Program Deadlines and Target Dates for Proposals

The following listing gives key dates on which proposals for grants are due at NSF for the next twelve months. Further information may be obtained by contacting the NSF staff members listed for each entry. Brochures indicated in parentheses may be requested on the Publications Order Form, unless otherwise indicated. These dates are subject to change. NSF encourages proposals from minorities, women, and the handicapped.

The number and letter codes after some announcements refer to listings in the *Keyword Thesaurus*. They will be used by the research management offices of participating colleges and universities in an attempt to achieve more complete and efficient distribution of NSF *Bulletin* information to potential users.

Program Deadlines: **Proposals received after these cutoff dates generally will be returned to the proposer.**

Target Dates: **Proposals received after these cutoff dates will be reviewed although they may miss a particular panel meeting.**

* * * * *

NSF programs not listed under "program deadlines" and "target dates" will accept proposals any time of the year. It takes approximately six months to process a proposal.

* * * * *

BBS Biological, Behavioral, and Social Sciences

PROGRAM DEADLINES:

Oct. 1, 1986—

Postdoctoral Research Fellowships. (Brochure NSF 85-55). Dr. Franklin Harris, Division of Biotic Systems and Research (357-7332).

Jan. 2, 1987—

Terrestrial and Freshwater Biological Field Stations Special Competition. (Brochure NSF 85-47). Dr. James Edwards, Division of Biotic Systems and Resources (357-7475).

Jan. 12, 1987—

Postdoctoral Research Fellowships in Plant Biology. Dr. H.T. Huang, Division of Molecular Biosciences (357-9782), Dr. Phyllis Cahn, Division of Cellular Biosciences (357-0127).

TARGET DATES:

Oct. 1, 1986—

Systematic Biology. Dr. James Rodman, Division of Biotic Systems and Resources (357-9588). [P.T.34; K.W.1002011].

Population Biology and Physiological Ecology. Dr. John Brooks, Division of Biotic Systems and Resources (357-9728). [P.T.34; K.W.1007001,0413004].

Oct. 15, 1986—

Doctoral Dissertation Research in Biotic Systems and Resources. (Brochure NSF 85-61). Dr. James Edwards, Division of Biotic Systems and Resources (357-7475). [P.T.40; K.W.1002011,1002016,1007001].

Oct. 31, 1986—

Archaeometry Competition. (Brochure NSF 84-85). Dr. John Yellen, Division of Behavioral and Neural Sciences (357-7804).

Nov. 1, 1986—

Cellular Pinysiology. (Brochure NSF 85-11). Dr. Maryanna Henkart or Dr. Barbara Zain, Division of Cellular Biosciences (357-7377). [P.T.34; K.W.1003002].

Cell Biology. (Brochure NSF 85-11). Dr. Edward Berger or Dr. Eve Briles, Division of Cellular Biosciences (357-7474). [P.T.34; K.W.1003002].

Developmental Biology. (Brochure NSF 85-11). Dr. Joseph Mascarenhas or Dr. Judith Plesset, Division of Cellular Biosciences (357-7989). [P.T.34; K.W.1003002].

Regulatory Biology. (Brochure NSF 85-11). Dr. Stephen Bishop or Dr. Elvira Doman, Division of Cellular Biosciences (357-7975). [P.T.34; K.W.1003002].

Eukaryotic Genetics. (Brochure NSF 85-11). Dr. DeLill Nasser, Division of Cellular Biosciences (357-0112). [P.T.34; K.W.1003002].

Ethics and Values Studies. Preliminary proposals. (Brochure NSF 86-48). Dr. Rachelle Hollander, Office of Interdirectorate Research Coordination. (357-9894). [P.T.34,42; K.W.1000000, 0600000,0400000].

Dec. 1, 1986—

Biochemistry. (Brochure NSF 85-56). Dr. H.T. Huang or Mrs. Estella Engel, Division of Molecular Biosciences (357-7945).

Biological Instrumentation. (Brochures NSF 85-56 and 83-19). Dr. John Wooley or Dr. Edward Zapolski, Division of Molecular Biosciences (357-7652).

Metabolic Biology. (Brochure NSF 85-56). Dr. William Robertson or Ms. Carter Kimsey, Division of Molecular Biosciences (357-7987).

Prokaryotic Genetics. (Brochure NSF 85-56). Dr. Phillip Harriman or Dr. Marcus Rhoades, Division of Molecular Biosciences (357-9687).

Biophysics. (Brochure NSF 85-56). Dr. Arthur Kowalsky, Dr. Patricia Jost or Ms. Brenda Flam, Division of Molecular Biosciences (357-7987).

Dec. 16, 1986—

Ecology. Dr. Patrick Flanagan, Division of Biotic Systems and Resources (357-9734). [P.T.34; K.W.1002016].

Population Biology and Physiological Ecology. Dr. John Brooks, Division of Biotic Systems and Resources (357-9728).

Ecosystem Studies. Dr. Jerry Melillo, Division of Biotic Systems and Resources (357-9596).

Jan. 1, 1987—

Systematic Anthropological Collections. (Brochure NSF 83-82). Ms. Mary Greene, Division of Social and Economic Science (357-7804).

Anthropology. (Brochure NSF 85-55). Dr. John Yellen or Dr. Stuart Plattner, Division of Behavioral and Neural Sciences (357-7804). [P.T.34; K.W.0401000].

Social and Developmental Psychology. (Brochure NSF 85-55). Dr. Jean Intermaggio, Division of Behavioral and Neural Sciences (357-9485). [P.T.34; K.W.0414006,0414014].

Jan. 15, 1987—

Economics. Dr. James Blackman, Dr. Daniel Newlon or Dr. Lynn Pollnow, Division of Social and Economic Science (357-9674). [P.T.34; K.W.0408000].

Geography and Regional Science. Dr. Ronald Abler or Dr. Sonja Sperlich, Division of Social and Economic Science (357-7326). [P.T.34; K.W. 0409000].

History and Philosophy of Science. Dr. Ronald Overmann or Dr. Sara Nerlove, Division of Social and Economic Science (357-9677). [P.T.34; K.W.0309008].

Law and Social Sciences. Dr. Felice Levine or Dr. Sonja Sperlich, Division of Social and Economic Science (357-9564). [P.T.34; K.W.0901026].

Decision and Management Science. Dr. Arie Lewin or Dr. Vincent Covello, Division of Social and Economic Science (357-7417). [P.T.34; K.W.0901026].

Measurement Methods and Data Improvement. Dr. Murray Aborn or Dr. Sara Nerlove, Division of Social and Economic Science (357-7913). [P.T.34; K.W.0417004].

Sociology. Dr. Mark Abrahamson or Dr. Stanley Presser, Division of Social and Economic Science (357-7802). [P.T.34; K.W.0417000].

Political Science. Dr. Frank Scioli, Jr. or Dr. Lee Sigelman, Division of Social and Economic Science (357-9406).

Systematic Biology. Dr. James Rodman, Division of Biotic Systems and Resources (357-9588). [P.T.34; K.W.1002011].

Integrative Neural Systems. (Brochure NSF 85-55). Dr. Nathaniel Pitts, Division of Behavioral and Neural Sciences (357-7040).

Molecular and Cellular Neurobiology. (Brochure NSF 85-55). Dr. Stephen Morris or Dr. Patricia Anderson, Division of Behavioral and Neural Sciences (357-7471).

Developmental Neuroscience. (Brochure NSF 85-55). Dr. Frank Collins or Dr. Patricia Anderson, Division of Behavioral and Neural Sciences (357-7042). [P.T.34; K.W.0414012].

Sensory Physiology and Perception. (Brochure NSF 85-55). Dr. Carol Welt or Dr. Christopher Platt, Division of Behavioral and Neural Sciences (357-7428). [P.T.34; K.W.0414011].

Psychobiology. (Brochure NSF 85-55). Dr. Fred Stollnitz, Division of Behavioral and Neural Sciences (357-7949). [P.T. 34; K.W.0414012].

Feb. 1, 1987—

Cell Biology. (Brochure NSF 85-11). Dr. Edward Berger or Dr. Eve Briles, Division of Cellular Biosciences (357-7474). [P.T.34; K.W.1003002].

Cellular Physiology. (Brochure NSF 85-11). Dr. Maryanna Henkart or Dr. Barbara Zain, Division of Cellular Biosciences (357-7377). [P.T.34; K.W.1003002].

Developmental Biology. (Brochure NSF 85-11). Dr. Joseph Mascarenhas or Dr. Judith Plesset, Division of Cellular Biosciences (357-7989). [P.T.34; K.W.1003002].

Eukaryotic Genetics. (Brochure NSF 85-11). Dr. DeLill Nasser, Division of Cellular Biosciences (357-0112). [P.T. 34; K.W.1003002].

Regulatory Biology. (Brochure NSF 85-11). Dr. Stephen Bishop or Dr. Elvira Doman, Division of Cellular Biosciences (357-7975). [P.T.34; K.W.1003002].

Linguistics. (Brochure NSF 85-55). Dr. Paul Chapin, Division of Behavioral and Neural Sciences (357-7696). [P.T.34; K.W.0410000].

Memory and Cognitive Processes. (Brochure NSF 85-55). Dr. Joseph Young, Division of Behavioral and Neural Sciences (357-9898). [P.T.34; K.W.0414005].

Ethics and Values Studies. Dr. Rachelle Hollander, Office of Interdirectorate Research Coordination (357-9894).

May 1, 1987—

Doctoral Dissertation Research in Biotic Systems and Resources. (Brochure NSF 85-61). Dr. James Edwards, Division of Biotic Systems and Resources (357-7475).

June 1, 1987—

Biochemistry. (Brochure NSF 85-56). Dr. Ira Wool, Dr. H.T. Huang, or Mrs. Estella Engel, Division of Molecular Biosciences (357-7945).

Biological Instrumentation. (Brochures NSF 85-56 and 83-19). Dr. John Wooley and Dr. Edward Zapolski, Division of Molecular Biosciences (357-7652).

Metabolic Biology. (Brochure NSF 85-56). Dr. William Robertson or Ms. Carter Kimsey, Division of Molecular Biosciences (357-7987).

Prokaryotic Genetics. (Brochure NSF 85-56). Dr. Phillip Harriman or Dr. Marcus Rhodes, Division of Molecular Biosciences (357-9687).

Biophysics. (Brochure NSF 85-56). Dr. Arthur Kowalsky, Dr. Patricia Jost or Ms. Brenda Flam, Division of Molecular Biosciences (357-7987).

June 15, 1987—

Ecology. Dr. Patrick Flanagan, Division of Biotic Systems and Resources (357-9734). [P.T.34; K.W.1002016].

Systematic Biology. Dr. James Rodman, Division of Biotic Systems and Resources (357-9588). [P.T.34; K.W.1002011].

Population Biology and Physiological Ecology. Dr. John Brooks, Division of Biotic Systems and Resources (357-9720).

Ecosystem Studies. Dr. Jerry Melillo, Division of Biotic Systems and Resources (357-9596).

July 1, 1987—

Cell Biology. (Brochure NSF 85-11). Dr. Edward Berger or Dr. Eve Briles, Division of Cellular Biosciences (357-7474). [P.T.34; K.W.1003002].

Cellular Physiology. (Brochure NSF 85-11) Dr. Maryanna Henkart or Dr. Barbara Zain, Division of Cellular Biosciences (357-7377). [P.T.34; K.W.1003002].

Developmental Biology. (Brochure NSF 85-11). Dr. Joseph Mascarenhas or Dr. Judith Plesset, Division of Cellular Biosciences (357-7989). [P.T.34; K.W.1003002].

Eukaryotic Genetics. (Brochure NSF 85-11). Dr. DeLill Nasser, Division of Cellular Biosciences (357-0112). [P.T. 34; K.W.1003002].

Regulatory Biology. (Brochure NSF 85-11). Dr. Stephen Bishop or Dr. Elvira Doman, Division of Cellular Biosciences (357-7975). [P.T.34; K.W.1003002].

Social and Developmental Psychology. (Brochure NSF 85-55). Dr. Jean Intermaggio, Division of Behavioral and Neural Sciences (357-9485). [P.T.34; K.W.0414006,0414014].

July 15, 1987—

Molecular and Cellular Neurobiology. (Brochure NSF 85-55). Dr. Stephen Morris, Division of Behavioral and Neural Sciences (357-7471).

Psychobiology. (Brochure NSF 85-55). Dr. Fred Stollnitz, Division of Behavioral and Neural Sciences (357-7949). [P.T. 34; K.W.0414012].

Developmental Neuroscience. (Brochure NSF 85-55) Dr. Frank Collins, Division of Behavioral and Neural Sciences (357-7042). [P.T.34; K.W.0414012].

Integrative Neural Systems. (Brochure NSF 85-55). Dr. Nathaniel Pitts, Division of Behavioral and Neural Sciences (357-7040).

Sensory Physiology and Perception. (Brochure NSF 85-55). Dr. Carol Welt, Division of Behavioral and Neural Sciences (357-7428). [P.T.34; K.W.0414011].

Aug. 1, 1987—

Linguistics. (Brochure NSF 85-55). Dr. Paul Chapin, Division of Behavioral and Neural Sciences (357-7696). [P.T.34; K.W.0410000].

Memory and Cognitive Processes. (Brochure NSF 85-55). Dr. Joseph Young, Division of Behavioral and Neural Sciences (357-9898). [P.T.34; K.W.0414005].

Anthropology. (Brochure NSF 85-55). Dr. John Yellen or Dr. Stuart Plattner, Division of Behavioral and Neural Sciences (357-7804). [P.T.34; K.W.0401000].

Ethics and Values Studies. Dr. Rachelle Hollander, Office of Interdirectorate Research Coordination (357-9894).

Aug. 15, 1987—

Decision and Management Science. Dr. Arie Lewin or Dr. Vincent Covello, Division of Social and Economic Science (357-7417). [P.T.34; K.W.0901026].

Economics. Dr. James Blackman, Dr. Daniel Newlon or Dr. Lynn Pollnow, Division of Social and Economic Science (357-9674). [P.T.34; K.W.0408000].

Geography and Regional Science. Dr. Ronald Abler, Division of Social and Economic Science (357-7326). [P.T.34; K.W. 0409000].

History and Philosophy of Science. Dr. Ronald Overmann or Dr. Sara Nerlove, Division of Social and Economic Science (357-9677). [P.T.34; K.W.0417004].

Law and Social Sciences. Dr. Felice Levine or Dr. Sonja Sperlich, Division of Social and Economic Science (357-9564).

Measurement Methods and Data Improvement. Dr. Murray Aborn or Dr. Sara Nerlove, Division of Social and Economic Science (357-7913).

Sociology. Dr. Mark Abrahamson or Dr. Stanley Presser, Division of Social and Economic Science (357-7802).

Political Science. Dr. Frank Scioli, Jr. or Dr. Lee Sigelman, Division of Social and Economic Science (357-9406).

CISE Computer and Information Science and Engineering

PROGRAM DEADLINES:

Oct. 1, 1986—

NSFnet Connections. (Brochure NSF 86-26). Dr. Stephen Wolff, Networking, Office of Advanced Scientific Computing (357-9717).

Feb. 1, 1987—

Operations and Management of NSFnet. Dr. Stephen Wolff, Networking, Office of Advanced Scientific Computing (357-9717).

Feb. 15, 1987—

Supercomputing Summer Training Institute. Centers, Office of Advanced Scientific Computing (357-9776).

May 1, 1987—

Supercomputer Resource Centers. Centers, Office of Advanced Scientific Computing (357-9776).

May 4, 1987—

Computer Research Equipment. (Brochure NSF 85-64). Limited to research equipment to support multiple research projects in computer science or computer engineering at graduate institutions. Dr. John Lehmann, Division of Computer Research (357-7349).

Sept. 15, 1987—

Coordinated Experimental Computer Research. (Brochure NSF 85-42). Limited to Ph.D degree-granting institutions with research programs in computer science and engineering. Dr. Harry Hedges or Dr. Robert Minnick, Division of Computer Research (357-7349).

TARGET DATES:

Nov. 1, 1986—

Theoretical Computer Science. Dr. Thomas Head, Division of Computer Research (357-7375).

Software Systems Science. Dr. Thomas Keenan, Division of Computer Research (357-7375).

Software Engineering. Dr. Bruce Barnes, Division of Computer Research (357-7345).

Intelligent Systems. Dr. Y.T. Chien, Division of Computer Research (357-7345).

Computer Systems Design. Dr. John Lehmann, Division of Computer Research (357-7349).

Special Projects. Mr. Lawrence Oliver, Division of Computer Research (357-7375).

ENG Engineering

PROGRAM DEADLINES:

Jan. 15, 1987—

Engineering Initiation Awards. Technical inquiries concerning this program should be addressed to the appropriate Engineering Division: Chemical, Biochemical, and Thermal Engineering (357-9606); Mechanics, Structures, and Materials Engineering (357-9542); Electrical, Communications, and Systems Engineering (357-9618); Design, Manufacturing, and Computer-Integrated Engineering (357-7508); Fundamental Research for Emerging and Critical Engineering Systems (357-9545); Division of Cross-Disciplinary Research (357-9707).

Jan. 30, 1987—

Summer Faculty Internship in Tribology. (Brochure NSF 86-36). Dr. Said Jahanmir, Tribology Program (357-9542). [P.T.34; K.W.0609000,0605000,0601100, 1003000,1009000, 1013000,1006000].

Feb. 27, 1987—

Lightwave Technology. Dr. T. K. Gustafson, Lightwave Technology (357-7955).

Biotechnology. Dr. Fred Heineken, Biotechnology (357-9545).

TARGET DATES:

Dec. 15, 1986—

Engineering Research Equipment Grants. (Brochure NSF 84-51). Technical inquiries concerning this program should be addressed to the appropriate Engineering Division: Chemical, Biochemical, and Thermal Engineering (357-9606); Mechanics, Structures, and Materials Engineering (357-9542); Electrical, Communications, and Systems Engineering (357-9618); Design, Manufacturing, and Computer-Integrated Engineering (357-7508); Fundamental Research for Emerging and Critical Engineering Systems (357-9545); Division of Cross-Disciplinary Research (357-9707). [P.T.18; K.W.0600000].

GEO Geosciences

PROGRAM DEADLINES:

Jan. 15, 1987—

Division of Earth Sciences. Description of programs are contained in *Earth Sciences Research and NSF* (Brochure NSF 85-26).

Stratigraphy and Paleontology. Dr. William Orr (357-7806).

Surficial Processes. Dr. John Maccini (357-7866).

Crustal Structure and Tectonics. Dr. Thomas Wright (357-7915).

Seismology. Dr. John Kelleher (357-7356).

Experimental and Theoretical Geophysics. Dr. Michael Mayhew (357-7355).

Petrogenesis and Mineral Resources. Dr. Douglas Rumble, III (357-7911).

Volcanology and Mantle Geochemistry. Dr. John Snyder (357-7916).

Experimental and Theoretical Geochemistry. Dr. Alan Gaines (357-7498).

Instrumentation and Facilities. Dr. Daniel Weill (357-7807).

Continental Lithosphere. Dr. Leonard Johnson (357-7721).

June 1, 1987—

U.S. Antarctic Research. For field work in the 1988-1989 austral summer or the 1989 winter or for research not involving field work beginning in fiscal 1988. Antarctic proposal preparation kit must be used. Brochure available from program. Division of Polar Programs (357-7817). [P.T.34; Loc.0102000; K.W.1000000, 0600000].

Aug. 15, 1987—

Division of Earth Sciences. Description of programs are contained in *Earth Sciences Research and NSF* (Brochure NSF 85-26).

Stratigraphy and Paleontology. Dr. William Orr (357-7806).

Surficial Processes. Dr. John Maccini (357-7866).

Crustal Structure and Tectonics. Dr. Thomas Wright (357-7915).

Seismology. Dr. John Kelleher (357-7356).

Experimental and Theoretical Geophysics. Dr. Michael Mayhew (357-7355).

Petrogenesis and Mineral Resources. Dr. Douglas Rumble, III (357-7911).

Volcanology and Mantle Geochemistry. Dr. John Snyder (357-7916).

Experimental and Theoretical Geochemistry. Dr. Alan Gaines (357-7498).

Instrumentation and Facilities. Dr. Daniel Weill (357-7807).

Continental Lithosphere. Dr. Leonard Johnson (357-7721).

Sept. 1, 1987—

Arctic Research. Brochure NSF 86-29 describes the Arctic Research Program and other opportunities for support of arctic research. Division of Polar Programs (357-7817). [P.T.34; Loc.0111001; K.W.1000000, 0600000].

TARGET DATES:

Oct. 1, 1986—

Biological Oceanography, Chemical Oceanography, Marine Geology and Geophysics, Physical Oceanography. Dr. Michael Reeve, Division of Ocean Sciences (357-7924). [P.T.34; K.W.1008000].

Ocean Drilling Program. Dr. Richard Buffler, Division of Ocean Sciences (357-9849)

Dec. 1, 1986—

Climate Dynamics. Dr. Jay Fein, Division of Atmospheric Sciences (357-9892). [P.T.34; K.W.1001000].

Feb. 1, 1987—

Biological Oceanography, Chemical Oceanography, Marine Geology and Geophysics, Physical Oceanography. Dr. Michael Reeve, Division of Ocean Sciences (357-7924). [P.T.34; K.W.1008000].

Ocean Drilling Program, U.S. Science. Dr. Richard Buffler, Division of Ocean Sciences (357-9849).

Ocean Sciences Instrumentation Development. (Brochure NSF 84-63). "Instructions for Preparation of Proposals Requesting Support for Oceanographic Facilities." Mr. H. Lawrence Clark, Division of Ocean Sciences (357-7837). [P.T. 18; K.W.1008003].

May 1, 1987—

Climate Dynamics. Dr. Jay Fein, Division of Atmospheric Sciences (357-9892). [P.T.34; K.W.1001000].

June 1, 1987—

Biological Oceanography, Chemical Oceanography, Marine Geology and Geophysics, Physical Oceanography. Dr. Michael Reeve, Division of Ocean Sciences (357-7924). [P.T.34; K.W.1008000].

July 1, 1987—

Ship Operations. (Brochure NSF 84-63) "Instructions for Preparation of Proposals Requesting Support for Oceanographic Facilities." Mr. John McMillan, Division of Ocean Sciences (357-7837). [P.T.18,34; K.W.1008003].

Shipboard Technicians. (Brochure NSF 84-63). "Instructions for Preparation of Proposals Requesting Support for Oceanographic Facilities." Mr. H. Lawrence Clark, Division of Ocean Sciences (357-7837).

Aug. 1, 1987—

Climate Dynamics. Dr. Jay Fein, Division of Atmospheric Sciences (357-9892). [P.T.34; K.W.1001000].

Sept. 1, 1987—

Oceanographic Instrumentation. (Brochure NSF 84-63). "Instructions for Preparation of Proposals Requesting Support for Oceanographic Facilities." Mr. H. Lawrence Clark, Division of Ocean Sciences (357-7837).

Shipboard Scientific Support Equipment. (Brochure NSF 84-63). "Instructions for Preparation of Proposals Requesting Support for Oceanographic Facilities." Mr. Richard West, Division of Ocean Sciences (357-7837).

MPS Mathematical and Physical Sciences

PROGRAM DEADLINES:

Nov. 15, 1986—

Mathematical Sciences Postdoctoral Research Fellowships. (Brochure NSF 85-45) For applications or information contact the Special Projects Program, Division of Mathematical Sciences (357-9764). [P.T. 22; K.W.1010000].

Dec. 1, 1986—

Scientific Computing Research Equipment. Special Projects Program, Division of Mathematical Sciences (357-9764).

Apr. 1, 1987—

Regional Conferences in Mathematical Sciences. Special Projects Program. Division of Mathematical Sciences (357-9764).

TARGET DATES:

Nov. 1, 1986—

Condensed Matter Theory. Proposals for disciplinary research projects, with requested starting dates on/or before Nov. 1, 1986. Dr. William Clinton or Dr. Purusottam Jena, Division of Materials Research (357-9737).

Low Temperature Physics. Proposals fo disciplinary research projects, with requested starting dates on/or before Nov 1, 1986. Dr. William Glaberson, Division o Materials Research (357-9787).

Solid State Chemistry. Proposals for disciplinary research projects, with requested starting dates on/or before Nov. 1, 1986. Dr. John Tossell, Division of Materials Research (357-9787).

Solid State Physics. Proposals for disciplinary research projects, with requested starting dates on/or before Nov. 1, 1986. Dr. Joseph Trivisonno or Dr. Paul Chu, Division of Materials Research (357-9737).

Metallurgy, Polymers, and Ceramics. Dr. Robert Reynik, Division of Materials Research (357-9789).

Materials Research Groups Program. (Brochure NSF 84-67). Division of Materials Research, Dr. Louis Toth (357-0114).

SEE Science and Engineering Education

PROGRAM DEADLINES:

Nov. 1, 1986—

NATO Postdoctoral Fellowships in Science. (Brochure NSF 86-42). Dr. Michael Frodyma, Division of Research Career Development (357-9466).

Nov. 7, 1986—

College Science Instrumentation Program (CSIP). (Brochure NSF 86-23). Limited to science, mathematics, and engineering departments in four-year colleges or universities offering instruction in the sciences and engineering leading to the bachelor's degree that do not offer the doctoral degree in any of the NSF-supported fields of science and engineering. Office of College Science Instrumentation (357-7051).

Nov. 14, 1986—

Graduate Research Fellowships. (Brochure NSF 86-46). Dr. Douglas Chapin, Division of Research Career Development (357-7856). For copies of the announcement and application materials contact the Fellowship Office, National Research Council, 2101 Constitution Ave., Wash., DC 20418 (334-2872).

Minority Graduate Research Fellowships. (Brochure NSF 86-47). Dr. Douglas Chapin, Division of Research Career Development (357-7856). For copies of the announcement and application materials, contact the Fellowship Office, National Research Council, 2101 Constitution Ave., Wash., DC 20418 (334-7856).

TARGET DATES:

Oct. 1, 1986—

Instructional Materials Development. (Brochure NSF 85-10). Ms. Mary Kohlerman, Division of Materials Development, Research and Informal Science Education (357-7066).

Oct. 15, 1986—

Teacher Preparation. (Brochure in press). Dr. Vincent Lunetta, Division of Teacher Preparation and Enhancement (357-7539).

Dec. 1, 1986—

Informal Science Education. (Brochure NSF 85-9). Ms. Elizabeth Martin or Mr. Michael Templeton, Division of Materials Development, Research and Informal Science Education (357-7076).

Feb. 1, 1987—

Teacher Enhancement. (Brochure in press). Dr. Fred Johnson, Dr. Vincent Lunetta, Dr. Jerrold Maben, or Dr. Charles Puglia (357-7539). Mr. Rodney Mansfield or Ms. Alice Moses (357-7074). Division of Teacher Preparation and Enhancement.

Instructional Materials Development. (Brochure NSF 85-10). Ms. Mary Kohlerman, Division of Materials Development, Research, and Informal Science Education (357-7066).

Mar. 15, 1987—

Research in Teaching and Learning. (Brochure NSF 85-10). Dr. Raymond Hannapel, Division of Materials Development, Research and Informal Science Education. (357-7071).

Apr. 1, 1987—

Informal Science Education. (Brochure NSF 85-9). Ms. Elizabeth Martin or Mr. Michael Templeton, Division of Materials Development, Research and Informal Science Education (357-7076).

Apr. 15, 1987—

Teacher Preparation. (Brochure in press). Dr. Vincent Lunetta, Division of Teacher Preparation and Enhancement (357-7539).

July 1, 1987—

Presidential Young Investigators. (Brochure NSF 86-22). Dr. W. Frederick Oettle, Division of Research Career Development (357 9466).

Aug. 1, 1987—

Teacher Enhancement. (Brochure in press). Dr. Fred Johnson, Dr. Vincent Lunetta, Dr. Jerrold Maben, or Dr. Charles Puglia (357-7539). Mr. Rodney Mansfield or Ms. Alice Moses (357-7074). Division of Teacher Preparation and Enhancement.

Informal Science Education. (Brochure NSF 85-9). Ms. Elizabeth Martin or Mr. Michael Templeton, Division of Materials Development, Research and Informal Science Education (357-7076).

Sept. 15, 1987—

Research in Teaching and Learning. (Brochure NSF 85-10). Dr. Raymond Hannapel, Division of Materials Development, Research and Informal Science Education (357-7071).

STIA Scientific, Technological, and International Affairs

PROGRAM DEADLINES:

Oct. 1, 1986—

NSF Visiting Professorships for Women. (Brochure NSF 85-6). Program requires that the applicant has a Ph.D. in a field of research supported by NSF and not hold a salaried position, or the promise of one, at the proposed host institution. Dr. Margarete Klein or Ms. Carol Erlebach, Division of Research Initiation and Improvement (357-7734). [P.T.06; K.W.0403018,0600000.1000000].

Oct. 1, 1986—

U.S.-New Zealand Cooperative Science. Annual deadline; proposals for joint research beginning no sooner than July 1 of the next calendar year. Division of International Programs (357-9558). [P.T.34,42,48; Loc.0112097; K.W.1000000].

U.S.-Australia Cooperative Science. For visits by Australians to the U.S. (i.e., no cost to NSF) only, for requested effective dates falling between July 1 and Dec. 31, 1987. Division of International Programs (357-9558). [P.T. 34,42,48; Loc.0112006; K.W.0400000,0600000,1000000].

Nov. 1, 1986—

U.S.-Industrialized Countries Program for the Exchange of Scientists and Engineers and Long-Term Visits. Program supports long-term visits (6-15 months) of a postdoctoral or sabbatical nature to industrialized countries of Western Europe or the Pacific. Awards will be announced the following spring. Division of International Programs (357-7554).

U.S.-Latin-America and Caribbean Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Ms. Christine French, Division of International programs (357-9563). [P.T.34,42,48; Loc.0110007; K.W.1000000].

U.S.-Venezuela Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Ms. Christine French, Division of International Programs (357-9563). [P.T. 34,42,48; Loc.0112147; K.W.0400000,0600000,1000000].

U.S.-Mexico Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Ms. Christine French, Division of International Programs (357-9563). [P.T.34,42,48; Loc.0112089; K.W.0400000,0600000,1000000].

U.S.-Brazil Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Mr. Dimas Chavez, Division of International Programs (357-9563). [P.T.34,42,48; Loc.0112089; K.W.0400000,0600000,1000000].

U.S.-Argentina Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Mr. Dimas Chavez, Division of International Programs (357-9563). [P.T.34,42,48; Loc.0112005; K.W.0400000,0600000,1000000].

Nov. 15, 1986—

U.S.-Israel Binational Science Foundation (BSF). Proposals should not be submitted to NSF; send to BSF Jerusalem. Division of International Programs (357-7613).

Dec. 1, 1986—

Research Improvement in Minority Institutions. (Brochure NSF 84-64). Dr. Roosevelt Calbert, Division of Research Initiation and Improvement (357-7350).

Jan. 1, 1987—

U.S.-Korea Cooperative Science. (Brochure NSF 83-50). Proposals for long-term visits and cooperative research. Dr. Gerald Edwards, Division of International Programs (357-9537). [P.T.34,42,48; Loc.0112070; K.W.1002033,1003003].

Jan. 15, 1987—

U.S.-Japan Program of Cooperation in Photoconversion and Photosynthesis. (Brochure NSF 83-11). Proposals for research visits. Division of International Programs (357-9558). [P.T.34,42,48; Loc.0112070; K.W.1002033,1003003].

Mar. 1, 1987—

U.S.-Austria Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700). [P.T.34,42,48; Loc.0112007; K.W.0400000,0600000, 1000000].

U.S.-Federal Republic of Germany Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700). [P.T.34,42,48; Loc.0112050; K.W.0400000, 0600000,1000000].

Cooperative Science Activities with Denmark, Iceland, the Netherlands, and Norway. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700).

U.S.-Finland Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700).

U.S.-Sweden Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700).

U.S.-Switzerland Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700). [P.T.34,42,48; Loc.0112131; K.W.0400000,0600000, 1000000].

Mar. 31, 1987—

U.S.-Spain Cooperative Program in Basic Sciences. (Brochure NSF 84-10). Proposals for cooperative research projects commencing in 1988; joint seminars and exchange of scientists. Division of International Programs (357-7554). [P.T.34,42,48; Loc.0112125; K.W.0400000,0600000,1000000].

Apr. 1, 1987—

U.S.-United Kingdom Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-7554). [P.T.34,42,48; Loc.0112143; K.W.0400000,0600000,1000000].

U.S.-Australia Cooperative Science. Annual deadline; proposals for joint research and seminars beginning anytime in 1988. Division of International Programs (357-9558). [P.T.34,42,48; Loc.0112006; K.W.0400000,0600000,1000000].

May 1, 1987—

U.S.-France Cooperative Science. (Brochure NSF 83-73). Proposals for cooperative research projects and joint workshops/seminars with requested effective dates in calendar year 1988. Division of International Programs (357-7554). [P.T.34,42,48; Loc.0112045; K.W.1000000,0400000].

U.S.-Argentina Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit a parallel proposal to counterpart agency. Mr. Dimas Chavez, Division of International Programs (357-9563). [P.T.34,42,48; Loc.0112005; K.W.0400000,0600000,1000000].

U.S.-Brazil Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Mr. Dimas Chavez, Division of International Programs (357-9563). [P.T.34,42,48; Loc.0112017; K.W.0400000,0600000,1000000].

U.S.-Mexico Cooperative Science. (Brochure NSF 80-52) Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Ms. Christine French, Division of International Programs (357-9563). [P.T.34,42,48; Loc.0112089; K.W.0400000,0600000,1000000].

U.S.-Venezuela Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Ms. Christine French, Division of International Programs (357-9563). [P.T.34,42,48; Loc.0112147; K.W.0400000,0600000,1000000].

U.S.-Latin America and Caribbean Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Ms. Christine French, Division of International Programs (357-9563). [P.T.34,42,48; Loc.0110007; K.W.1000000].

U.S.-Italy Cooperative Science. (Brochure NSF 83-73). Proposals for cooperative research projects and joint seminars. Division of International Programs (357-7554). [P.T.34,42,48; Loc.0112067; K.W.0400000,0600000, 1000000].

June 1, 1987—

U.S.-Japan Cooperative Science. (Brochure NSF 81-58). Proposals for cooperative research and joint seminar activities are accepted in May each year. Division of International Programs (357-9558). [P.T.34,42,48; Loc. 0112070; K.W.0400000,0600000,1000000].

June 19, 1987—

Small Business Innovation Research. Mr. Roland Tibbetts or Mr. Ritchie Coryell, Division of Industrial Science and Technological Innovation (357-7527).

July 1, 1987—

U.S.-Korea Cooperative Science. (Brochure NSF 83-50). Proposals for long-term visits and cooperative research only. Dr. Gerald Edwards, Division of International Programs (357-9537). [P.T.34,48; Loc.0103006; K.W.1000000,0600000].

U.S.-East Asia Cooperative Science. (Brochure NSF 83-50). Philippine component only. Proposals for long-term visits. Cooperative research, seminars and wokshops. Dr. Gerald Edwards, Division of International Programs (357-9537). [P.T.34,42,48; Loc.0112108; K.W.0600000, 1000000].

Sept. 15, 1987—

U.S.-United Kingdom Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-7554). [P.T.34,42,48; Loc.0112143; K.W.0400000, 0600000,1000000].

U.S.-Austria Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700).

U.S.-Federal Republic of Germany Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700). [P.T.34,42,48; Loc.0112050; K.W.0400000, 0600000,1000000].

Cooperative Science Activities with Denmark, Iceland, the Netherlands, and Norway. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700).

U.S.-Finland Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700).

U.S.-Sweden Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700).

U.S.-Spain Cooperative Program in Basic Sciences. (Brochure NSF 84-10). Proposal for cooperative research, joint seminars and exchange of scientists. Division of International Programs (357-7554).

U.S.-Switzerland Cooperative Science. (Brochure NSF 83-73). Semi-annual deadline for proposals for joint research and seminars. Division of International Programs (357-9700). [P.T.34,42,48; Loc.0112131; K.W.0400000,0600000, 1000000].

TARGET DATES:

Nov. 1, 1986—

U.S.-China Cooperative Science. (Brochure NSF 82-50). Cooperative research only. The program does not accept travel requests or unsolicited proposals for joint seminars and workshops. Proposals received after target date will be processed when received. Ms. Alice Hogan or Ms. Rose Bader, Division of International Programs (357-7393).

Nov. 15, 1986—

NSF-NATO Program for International Academic Industrial Exchanges of Scientists and Engineers (Double Jump). (Brochure NSF 85-5). Semi-annual target date. Research visits to academic, industrial, and government research institutions in NATO countries. Six to twelve months duration. Mr. Henryk Uznanski, Division of International Programs (357-7554).

NSF-The Vatican Cooperative Science. (Brochure NSF 83-73). Semi-annual target date. Research participation and scientific workshops within the framework of regional activities. Mr. Henryk Uznanski, Division of International Programs (357-7554).

Mar. 1, 1987—

Science in Developing Countries. Sub-Saharan Africa, Dr. Gerald Edwards (357-9537); North Africa and Turkey, Mr. Francis Field (357-9402); South and West Asia, Dr. Osman Shinaishin (357-9402); East Asia, Dr. Gordon Hiebert (357-9537); Latin America and Caribbean, Ms. Christine French (357-9563). Division of International Programs. [P.T.34,48; Loc.0113003; K.W.1000000,0400000, 0600000].

Apr. 1, 1987—

U.S.-Yugoslavia Cooperative Research. Cooperative research projects. Proposals should not be submitted to NSF (information copies are appreciated) but to Federal Administration for Scientific Educational, Cultural, and Technical Cooperation (FAISECTC) in Belgrade, Yugoslavia. Dr. Gerson Sher, Division of International Programs (357-7494).

May 1, 1987—

U.S.-Eastern European Cooperative Science. (Brochure NSF 81-27). Bulgaria, Hungary, and Romania cooperative research projects, bilateral seminars. Dr. Gerson Sher or Ms. Bonnie Thompson, Division of International Programs (357-7494).

Sept. 1, 1987—

Science in Developing Countries. Sub-Saharan Africa, Dr. Gerald Edwards (357-9537); North Africa and Turkey, Mr. Francis Field (357-9402); South and West Asia, Dr. Osman Shinaishin (357-9402); East Asia, Dr. Gordon Hiebert (357-9537); and Latin America and Caribbean. Ms. Christine French (357-9563). Division of International Programs. [P.T.34,48, Loc.0113003; K.W.1000000,0400000,0600000].

U.S.-East Asia Cooperative Science. (Brochure NSF 83-50). Indonesia, Malaysia, Singapore, Thailand. Dr. Gordon Hiebert, Division of International Programs (357-9537). [P.T.34,42,48; Loc.0112108; K.W.0600000,1000000].

■ POSITIONS OPEN

Applicants for the following positions should submit resumes including current salary to NSF, Personnel Administration Branch, Room 212, 1800 G Street, NW, Wash., DC 20550. Attn: Catherine Handle, 357-7840. Hearing imparied individuals should call: TDD 357-7492. NSF is an Equal Opportunity Employer.

These positions are excepted from the competitive civil service and will be filled on a permanent, one- or two-year rotational or temporary basis. The type of appointment is indicated in the job announcements. The per annum salary is as follows:

- **Program Director**—per annum salary ranges from $45,000 to $70,000*
- **Associate Program Director**—per annum salary ranges from $40,000 to $60,000
- **Assistant Program Director**—per annum salary ranges from $35,000 to $50,000

*Salary currently limited by statute to $68,700.

* * * * *

- **NSF's Division of Mathematical Sciences** is seeking qualified applicants for positions which periodically become available. Incumbents will be responsible for the planning, coordination, and management of basic research activities primarily through Federal grants and contracts to academic institutions and non-profit, non-academic research institutions. A broad, general knowledge of the field and some administrative experience are required. For technical information about the positions, contact Dr. John Polking, Division Director, 357-9669.

- **NSF's Division of Chemistry** is seeking applicants with backgrounds in organic, inorganic, physical, and analytical chemistry for positions which periodically become available. Individuals who would like to be considered in the summer of 1987 should apply to Dr. Edward Hayes, Director, Division of Chemistry, 357-7947.

- **NSF's Division of Chemical, Biochemical, and Thermal Engineering** is seeking candidates for a position in the Separation and Purification Processes program. The position will be filled by March 1987, on a one- or two-year rotational basis. The program supports research on the development and characterization of highly selective, energy-efficient, nondestructive, and economic processes from the separation and purification of chemical and biochemical products. Applicants should have a Ph.D. or equivalent research experience in chemical engineering or closely related fields. In addition, six to eight years of research experience beyond the Ph.D. is required. Teaching and industrial experience are desirable but not required.

- **NSF's Division of Mechanics, Structures, and Materials Engineering** is seeking applicants for the position of program director, Solid and Geomechanics program. The position will be filled on a rotational basis for one or two years. Applicants should have a Ph.D. or equivalent research experience with specializations in civil engineering, engineering mechanics, geotechnical engineering, mechanical engineering, or related fields. Applicants must have knowledge of both solid mechanics and geomechanics. The program director will be expected to interact with the research communities to encourage high quality, basic engineering research, assess appropriate areas of emphasis, and ensure the evolution and development of a good balance for the program.

STAFF CHANGES

Anne K. Boyle to Program Director, Algebra and Numbers Theory Program, Division of Mathematical Sciences, 357-9764.

Charles Brownstein to Executive Officer, Directorate for Computer and Information Science and Engineering, 357-7936.

Ching-Wu (Paul) Chu to Program Director, Solid State Physics Program, Division of Materials Research, 357-9737.

Robert Goulard to Program Director, Thermal Systems and Engineering Program, Division of Chemical, Biochemical and Thermal Engineering, 357-9606.

Craig S. Hartley to Program Director, Metallurgy Program, Division of Materials Research, 357-9789.

Fred D. Johnson to Associate Program Director, Teacher Enhancement Program, Division of Teacher Preparation and Enhancement, 357-7074.

Kwang Sup Kim to Program Officer, Chemical Analysis Program, Division of Chemistry, 357-7930.

Arthur Komar to Program Director, Gravitational Physics Program, Division of Physics, 357-7979.

Morton M. Labes to Program Director, Materials Research Groups Program, Division of Materials Research, 357-0114.

Michael T. Ledbetter to Associate Program Director, Marine Geology and Geophysics Program, Division of Ocean Sciences, 357-7312.

Leonard L. Lederman to Head, R&D Economics Studies Section, Division of Science Resources Studies, 357-4625.

Mary Ann Ottinger to Assoicate Program Director, Psycobiology Program, Division of Behavioral and Neural Sciences, 357-7949.

Joseph Reed to Program Officer, Synthetic Inorganic and Organometallic Program, Division of Chemistry, 357-7501.

Michael R. Reeve to Head, Ocean Sciences Research Section, Division of Ocean Sciences, 357-7924.

A. Truman Schwartz to Deputy Director, Division of Teacher Preparation and Enhancement, 357-7074.

Joseph W. Serene to Acting Head, Condensed Matter Sciences Section, Division of Materials Research, 357-9737.

NSF Announces Competition for 3 Fellowship Programs

Applications are now available for approximately 610 fellowships that will be awarded next spring for advanced study. Competition for the fellowships is open to citizens and nationals of the United States. Awards are made on the basis of merit for full-time study in all fields of science, mathematics, and engineering, including interdisciplinary and multidisciplinary areas.

NSF Graduate Fellowships (NSF 86-46) are awarded for study leading to a master's or doctoral degree at any non-profit U.S. or foreign institution offering advanced degrees in science or engineering and is limited to individuals with no more than 20 semester or 30 quarter hours credit of post-baccalaureate study and without a post-baccalaureate degree in science or engineering at the time of application. Contact the Fellowship Office, National Research Council, 2101 Constitution Ave., Wash., DC 20418 (202/334-2872) for copies of the announcement and application materials.

NSF Minority Graduate Fellowships (NSF 86-47) are available to students of minority groups underrepresented at the advanced levels of science and engineering, who may apply to either or both of the graduate-level fellowship programs. The announcement and application materials are available from the Fellowship Office, National Research Council, 2101 Constitution Ave., Wash., DC 20418 (202/334-2872).

North Atlantic Treaty Organization (NATO) Postdoctoral Fellowships (NSF 86-42) are awarded for advanced study outside the U.S. in a country that is either a member of NATO or a neighboring country cooperating with NATO. For copies of the announcement and application materials, contact the Division of Research Career Development, Science and Engineering Education (357-7536).

October 1986 Publications Order Form

Single copies of the following publications are available by checking appropriate boxes. Only those publications listed below can be ordered on this form; requests for NSF publications listed in previous *Bulletins* must be made separately. This Order Form and requests for other publications should be sent to Forms and Publications Unit, Room 232, National Science Foundation, 1800 G St., N.W., Washington, DC 20550.

Check:

- ☐ NSF 80-52. U.S.-Latin America and Caribbean Cooperative Science.
- ☐ NSF 81-27. U.S.-Eastern Europe Cooperative Science.
- ☐ NSF 81-34. Research in Information Science.
- ☐ NSF 81-58. U.S.-Japan Cooperative Science.
- ☐ NSF 81-69. Special Research Initiation Awards for New Investigators in Information Science.
- ☐ NSF 82-50. U.S.-China Cooperative Science.
- ☐ NSF 82-56. Industry/University Cooperative Research.
- ☐ NSF 82-86. U.S.-India Cooperative Science
- ☐ NSF 83-11. U.S.-Japan Program for Cooperation in Photoconversion and Photosynthesis.
- ☐ NSF 83-19. Biological Instrumentation.
- ☐ NSF 83-50. U.S.-East Asia Cooperative Science.
- ☐ NSF 83-57. Grants for Scientific and Engineering Research.
- ☐ NSF 83-58. Science in Developing Countries.
- ☐ NSF 83-73. Cooperative Science Programs with Western Europe.
- ☐ NSF 83-82. Support for Systematic Anthropological Collections.
- ☐ NSF 84-10. U.S.-Spain Cooperative Program in Basic Sciences.
- ☐ NSF 84-26. Sub-Saharan Africa Cooperative Science.
- ☐ NSF 84-51. Engineering Research Equipment Grants.
- ☐ NSF 84-62. Facilitation Awards for Handicapped Scientists and Engineers.
- ☐ NSF 84-64. Research Improvement in Minority Institutions.
- ☐ NSF 84-75. Minority Research Initiation—Program Announcement.
- ☐ NSF 84-85. Archaeometry Competition.
- ☐ NSF 85-3. Social and Economic Science.
- ☐ NSF 85-5. NSF-NATO Exchange for International Academic-Industrial Exchange of U.S. Scientists (Double Jump).
- ☐ NSF 85-6. NSF Visiting Professorships for Women.
- ☐ NSF 85-10. Materials Development and Research.
- ☐ NSF 85-11. Division of Cellular Biosciences (Flyer).
- ☐ NSF 85-26. Earth Sciences Research and NSF.
- ☐ NSF 85-42. Coordinated Experimental Computer Science Research.
- ☐ NSF 85-47. Equipment and Facilities for Research at Terrestrial and Freshwater Biological Field Stations.
- ☐ NSF 85-54. Research Opportunities for Women—1986.
- ☐ NSF 85-55. Behavioral and Neural Sciences.
- ☐ NSF 85-56. Molecular Biosciences.
- ☐ NSF 85-59. Research in Undergraduate Institutions.
- ☐ NSF 85-64. Equipment Grants for Computer Research.
- ☐ NSF 85-66. Instrumentation for Materials Research.
- ☐ NSF 86-1. FY 1985 NSF Annual Report
- ☐ NSF 86-18. Publications of the National Science Foundation
- ☐ NSF 86-20. Division of Biotic Systems and Resources (Flyer).
- ☐ NSF 86-22. Presidential Young Investigator Awards.
- ☐ NSF 86-23. College Science Instrumentation.
- ☐ NSF 86-25. Lightwave Technology Program Announcement.
- ☐ NSF 86-27. Directory of Awards, Science and Engineering Education.
- ☐ NSF 86-29. Grants for Arctic Research.
- ☐ NSF 86-32. Engineering Research Centers.
- ☐ NSF 86-42. NATO Postdoctoral Fellowships in Science.
- ☐ NSF 86-46. Graduate Research Fellowships.
- ☐ NSF 86-52. Mathematical Sciences Postdoctoral Research Fellowships.
- ☐ NSF 86-47. Minority Graduate Research Fellowships.
- ☐ NSF 86-62. Ethics and Values Studies.

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14/3

National Science Foundation

Bulletin

Vol. 14, No. 3, November 1986

NSF Announcements for November 1986

The *NSF Bulletin* provides monthly news about NSF programs, deadline dates, publications, meetings, and sources for more information. (Telephone numbers are given in parentheses; all numbers are the Washington, DC, area code 202, unless otherwise indicated.)

Research Opportunities for Women

The Research Opportunities for Women (ROW) program is designed to provide opportunities for women scientists and engineers to conduct independent research. Opportunities include:

- **Research Initiation Grants** for women who have not previously received Federal research support or who are returning to research activities after a career interruption. These one-time awards provide support for a maximum of 36 months. Proposals should be submitted to NSF disciplinary research programs in accordance with the target dates or deadlines of those programs.
- **Research Planning Grants** may be used for salary; travel to conferences or major research centers to consult with other investigators; preliminary work to determine the feasibility of a proposed line of inquiry; or any other activities that will facilitate research project and proposal development. Awards are limited to a maximum of $12,000 for a period of up to 12 months. Proposals must be received by Jan. 15 each year and should be submitted to the cognizant NSF program through standard institutional channels.
- **Career Advancement Awards** may be used for salary, travel, research expenses or any research-related activity that will advance the applicant's research career. All women who are eligible to receive standard NSF research grants can apply. Awards are limited to a maximum of $50,000 for a period of up to 24 months. Proposals must be received by Jan. 15 each year and should be submitted to NSF disciplinary programs through standard institutional channels.

For further information, write to Dr. Margrete Klein, Research Opportunities for Women (357-9536). Request program brochure NSF 86-61 on the Publications Order Form.

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NSF Ethics and Values Studies

The new NSF announcement for Ethics and Values Studies (EVS) is now available. The brochure (NSF 86-48) contains guidelines for submitting preliminary and formal proposals to EVS. The next target date for EVS preliminary proposals is Nov. 1, 1986.

Results from the NSF-supported report **Ethics and Values Studies in Engineering** are also available on request.

For further information contact Dr. Rachelle Hollander, Coordinator, EVS, Directorate for Biological, Behavioral, and Social Sciences (357-9894).

Ecosystem Studies Program Guidelines

The following guidelines should be used to prepare proposals for the multi-investigator, multi-disciplinary Ecosystem Studies Program.

Proposals should be limited to 60 double-spaced pages for the body of the research proposition (i.e., introduction, literature review, hypothesis exposition, methods, project execution and management plan). Appendices of supporting materials (e.g., bibliographies, budgets, professional resumes, catalogs of extant information and related research efforts) should be limited to 40 single-spaced pages. Proposals should be printed on one side only, numbered at the bottom, and secured only in the top left corner.

Proposals for studies involving only one or two investigators/disciplines must comply with the limitations (i.e., 30 double-spaced pages of text) expressed in *Grants for Scientific and Engineering Research* (NSF 83-57). For this class of proposals, the total pages for appendices must not exceed 15 single-spaced pages.

General format requirements (see NSF 83-57) apply to all proposals. Proposals not adhering to these guidelines will be returned. Contact Dr. James Callahan, Ecosystem Studies (357-9596).

Joint Mathematical Society/Association Meeting

The Joint American Mathematical Society-Mathematical Association of America meeting will be held in San Antonio, TX, Jan. 21-25, 1987. An NSF information booth and representative will be present at the meeting. NSF contact is Dr. Judith Sunley, Division of Mathematical Sciences (357-9669).

Computer and Information Science and Engineering Reorganized

Effective Oct. 1, 1986, the Directorate for Computer and Information Science and Engineering (CISE) was reorganized to improve program balance and better represent current content and new research directions. The changes are listed below. Additional information may be obtained by requesting a copy of the FY 1987 *Guide to Programs* (NSF 86-40) or by contacting the relevant program director. Individuals having active grants should get in touch with their current program officer.

Division of Computer and Computation Research (CCR). Mr. Kent Curtis, Division Director (357-9747).

Programs:

Computer and Computation Theory, Dr. Thomas Head (357-7375).
Software Systems, Dr. Thomas Keenan (357-7375).
Software Engineering (357-7345).
Computer Systems Architecture, Dr. Robert Minnick (357-7349).
CISE Institutional Infrastructure, Dr. Harry Hedges (357-7349).
CISE Instrumentation, Dr. Alvin Thaler (357-7349).
Numeric and Symbolic Computation (357-7345).

Division of Information, Robotics and Intelligent Systems (IRIS). Dr. Y.T. Chien, Acting Division Director (357-9747).

Programs:

Knowledge and Database Systems, Dr. Joseph Deken (357-9569).
Robotics and Machine Intelligence, Dr. Y.T. Chien (357-9747).
Interactive Systems, Dr. Harold Bamford (357-9554).
Information Impact, Dr. Laurence Rosenberg (357-9592).

NS 1.3:

Division of Microelectronic Information Processing Systems (MIPS). Dr. Bernard Chern, Division Director (357-7373).
Programs:
Design, Tools, and Test, Dr. Robert Grafton (357-7853).
Microelectronic Systems Architecture, Dr. John Lehmann (357-7853).
Circuits and Signal Processing, Dr. Gilbert Devey (357-7853).
Experimental Systems (357-7853).
Systems Prototyping and Fabrication (357-7853).

Division of Advanced Scientific Computing. Dr. John Connolly, Division Director (357-7558).
Programs:
Supercomputer Centers, Dr. John Connolly (357-9776).
New Technologies, Dr. Albert Harvey (357-7727).
Networking Activities, Dr. Stephen Wolff (357-9717).
EXPRES, Dr. Alvin Thaler (357-9717).
Networking and Communications Research, Dr. Stephen Wolff (357-9717).

College Science Instrumentation Project Book

The Science and Engineering Education Directorate announces the publication of a project book for the College Science Instrumentation program. The book contains brief summaries of approximately 445 projects supported by CSIP during fiscal years 1986-87; lists projects ranging over most of the NSF-supported disciplines; and contains laboratory developments at the forefront of undergraduate instruction. The publication may be of interest to faculty involved in undergraduate laboratory instruction. Copies may be obtained by contacting Ms. Judith Glover, Office of College Science Instrumentation (357-9644).

Mathematical and Physical Sciences

The following MPS program brochures are now available:

- **Chemistry at the Interface of Chemistry and Biology** (NSF 86-54) and
- **Materials Chemistry: Research at the Interface of Chemistry and Materials Research** (NSF 86-58).

For further information contact Dr. Arthur Findeis (357-7503).

Science Resources Studies Data Available on Diskette and Electronic Bulletin Board

Data formerly published by the Division of Science Resources Studies (SRS) as **Detailed Statistical Tables** are now being issued on diskette. These diskettes are suitable for use on IBM-compatible personal computers and are available free of charge to users who provide SRS with blank diskettes. The data sets are in "read only," ASCII format and require no software. Your computer's own disk operating system (DOS) is all that is necessary to access these data. Each set of diskettes includes the program (complete with "HELP" and table-printing instructions), technical notes, and the detailed statistical tables.

The data currently available on diskette are listed below, together with the name and telephone number of the appropriate SRS staff person to contact for more information.

- "Characteristics of Doctoral Scientists and Engineers in the United States: 1984." John Scopino, 634-4664.
- "Federal Scientists and Engineers: 1985." Margaret Grucza, 634-4636.
- "Immigrant Scientists and Engineers: 1985." Michael Crowley, 634-4664.
- "Scientists, Engineers, and Technicians in Nonmanufacturing Industries: 1984." Joseph Gannon, 634-4636.

The **Electronic Bulletin Board** (BB), established in June 1986 by SRS, also contains the above data files in addition to files on financial amd human resources for science and engineering activities (see *NSF Bulletin* Vol. 14, No. 1).

The BB is available to anyone with a personal computer equipped with a modem. The system answers the telephone at 300 baud, no parity, eight data bits (XMODEM), and one stop bit. We suggest using 1200 baud if you have that capability. The host computer will automatically adjust to the baud rate that you are using. The phone number is 634-1764.

Science Resources Studies Publications

Copies of the following publications are available free from the Division of Science Resources Studies (634-4622).

Highlights:
"Defense Accounts for 75% of R&D Funds Proposed in President's 1987 Budget" (NSF 86-312).

Reports:
"National Patterns of Science and Technology Resources: 1986" (NSF 86-309).
"The Science and Technology Resources of West Germany: A Comparison With the United States" (NSF 86-310).

November 1986 NSB Meeting

The National Science Board will hold its November meeting on the 13th and 14th in the NSF Board Room (Rm. 540).

Portions of the meeting will be open to the public. Requests for information on the meeting, the schedule, or agendas may be directed to the Board office (357-9582).

Engineering Advisory Committee Meeting

The NSF Engineering Advisory Committee will meet Nov. 18-19 in Rm. 540. NSF contact is Ms. Mary Poats, Directorate for Engineering (357-9571).

Bulletin

NATIONAL SCIENCE FOUNDATION, WASHINGTON, D.C. 20550

Erich Bloch, Director
John Moore, Deputy Director

The **NSF Bulletin** is issued monthly (except July and August). Use of funds for printing this periodical has been approved by the Office of Management and Budget through March 31, 1991.

Editor: Doris Merida, Office of Legislative and Public Affairs (357-9498).

Program Deadlines and Target Dates for Proposals

The following listing gives key dates on which proposals for grants are due at NSF for the next three months. The dates listed are subject to change. Further information may be obtained by contacting the NSF staff members listed for each entry. Brochures indicated in parentheses may be requested on the Publications Order Form, unless otherwise indicated.

The number and letter codes after some announcements refer to listings in the publication *Keyword Thesaurus*. They will be used by the research management offices of participating colleges and universities in an attempt to achieve more complete and efficient distribution of *NSF Bulletin* information to potential users.

Program Deadlines: **Proposals received after these cutoff dates generally will be returned to the proposer.**

Target Dates: **Proposals received after these cutoff dates will be reviewed, although they may miss a particular panel meeting.**

• • • • •

NSF programs not listed under "program deadlines" and "target dates" will accept proposals any time of the year. It takes approximately six months to process a proposal.

• • • • •

BBS Biological, Behavioral, and Social Sciences

PROGRAM DEADLINES:

Jan. 2, 1987—

Terrestrial and Freshwater Biological Field Stations Special Competition. (Brochure NSF 85-47). Dr. James Edwards, Division of Biotic Systems and Resources (357-7475).

Jan. 12, 1987—

Postdoctoral Research Fellowships in Plant Biology. Dr. H.T. Huang, Division of Molecular Biosciences (357-9782), Dr. Phyllis Cahn, Division of Cellular Biosciences (357-0127).

TARGET DATES:

Nov. 1, 1986—

Cellular Physiology. (Brochure NSF 85-11). Dr. Maryanna Henkart or Dr. Barbara Zain, Division of Cellular Biosciences (357-7377). [P.T.34; K.W.1003002].

Cell Biology. (Brochure NSF 85-11). Dr. Edward Berger or Dr. Eve Briles, Division of Cellular Biosciences (357-7474). [P.T.34; K.W.1003002].

Developmental Biology. (Brochure NSF 85-11). Dr. Joseph Mascarenhas or Dr. Judith Plesset, Division of Cellular Biosciences (357-7989). [P.T.34; K.W.1003002].

Regulatory Biology. (Brochure NSF 85-11). Dr. Stephen Bishop or Dr. Elvira Doman, Division of Cellular Biosciences (357-7975). [P.T.34; K.W.1003002].

Eukaryotic Genetics. (Brochure NSF 85-11). Dr. DeLill Nasser, Division of Cellular Biosciences (357-0112). [P.T.34; K.W.1003002].

Ethics and Values Studies. Preliminary proposals. (Brochure NSF 86-48). Dr. Rachelle Hollander, Office of Interdirectorate Research Coordination (357-9894). [P.T.34,42; K.W.1000000, 0600000,0400000].

Dec. 1, 1986—

Biochemistry. (Brochure NSF 85-56). Dr. H.T. Huang or Mrs. Estella Engel, Division of Molecular Biosciences (357-7945).

Biological Instrumentation. (Brochures NSF 85-56 and 83-19). Dr. John Wooley or Dr. Edward Zapolski, Division of Molecular Biosciences (357-7652).

Metabolic Biology. (Brochure NSF 85-56). Dr. William Robertson or Ms. Carter Kimsey, Division of Molecular Biosciences (357-7987).

Prokaryotic Genetics. (Brochure NSF 85-56). Dr. Phillip Harriman or Dr. Marcus Rhoades, Division of Molecular Biosciences (357-9687).

Biophysics. (Brochure NSF 85-56). Dr. Arthur Kowalsky, Dr. Patricia Jost, or Ms. Brenda Flam, Division of Molecular Biosciences (357-7987).

Dec. 16, 1986—

Ecology. Dr. Patrick Flanagan, Division of Biotic Systems and Resources (357-9734). [P.T.34; K.W.1002016].

Population Biology and Physiological Ecology. Dr. John Brooks, Division of Biotic Systems and Resources (357-9728). [P.T.34; K.W.1007001,0413004].

Ecosystem Studies. Dr. Jerry Melillo, Division of Biotic Systems and Resources (357-9596).

Jan. 1, 1987—

Systematic Anthropological Collections. (Brochure NSF 83-82). Ms. Mary Greene, Division of Social and Economic Science (357-7804).

Anthropology. (Brochure NSF 85-55). Dr. John Yellen or Dr. Stuart Plattner, Division of Behavioral and Neural Sciences (357-7804). [P.T.34; K.W.0401000].

Social and Developmental Psychology. (Brochure NSF 85-55). Dr. Jean Intermaggio, Division of Behavioral and Neural Sciences (357-9485). [P.T.34; K.W.0414006,0414014].

Jan. 15, 1987—

Economics. Dr. James Blackman, Dr. Daniel Newlon, or Dr. Lynn Pollnow, Division of Social and Economic Science (357-9674). [P.T.34; K.W.0408000].

Geography and Regional Science. Dr. Ronald Abler or Dr. Sonja Sperlich, Division of Social and Economic Science (357-7326). [P.T.34; K.W. 0409000].

History and Philosophy of Science. Dr. Ronald Overmann or Dr. Sara Nerlove, Division of Social and Economic Science (357-9677). [P.T.34; K.W.0309008].

Law and Social Sciences. Dr. Felice Levine or Dr. Sonja Sperlich, Division of Social and Economic Science (357-9564). [P.T.34; K.W.0901026].

Decision and Management Science. Dr. Arie Lewin or Dr. Vincent Covello, Division of Social and Economic Science (357-7417). [P.T.34; K.W.0901026].

Measurement Methods and Data Improvement. Dr. Murray Aborn or Dr. Sara Nerlove, Division of Social and Economic Science (357-7913). [P.T.34; K.W.0417004].

Sociology. Dr. Mark Abrahamson or Dr. Stanley Presser, Division of Social and Economic Science (357-7802). [P.T.34; K.W.0417000].

Political Science. Dr. Frank Scioli, Jr. or Dr. Lee Sigelman, Division of Social and Economic Science (357-9406).

Systematic Biology. Dr. James Rodman, Division of Biotic Systems and Resources (357-9588). [P.T.34; K.W.1002011].

Integrative Neural Systems. (Brochure NSF 85-55). Dr. Nathaniel Pitts, Division of Behavioral and Neural Sciences (357-7040).

Molecular and Cellular Neurobiology. (Brochure NSF 85-55). Dr. Stephen Morris or Dr. Patricia Anderson, Division of Behavioral and Neural Sciences (357-7471).

Developmental Neuroscience. (Brochure NSF 85-55). Dr. Frank Collins or Dr. Patricia Anderson, Division of Behavioral and Neural Sciences (357-7042). [P.T.34; K.W.0414012].

Sensory Physiology and Perception. (Brochure NSF 85-55). Dr. Carol Welt or Dr. Christopher Platt, Division of Behavioral and Neural Sciences (357-7428). [P.T.34; K.W.0414011].

Psychobiology. (Brochure NSF 85-55). Dr. Fred Stollnitz, Division of Behavioral and Neural Sciences (357-7949). [P.T. 34; K.W.0414012].

CISE Computer and Information Science and Engineering

TARGET DATES:

Nov. 1, 1986—

Computer and Computation Theory. Dr. Thomas Head, Division of Computer and Computation Research (357-7375).

Software Systems. Dr. Thomas Keenan, Division of Computer and Computation Research (357-7375).

Software Engineering. Division of Computer and Computation Research (357-7345).

Numeric and Symbolic Computation. Division of Computer and Computation Research (357-7345).

Computer Systems Architecture. Dr. Robert Minnick, Division of Computer and Computation Research (357-7349).

ENG Engineering

PROGRAM DEADLINES:

Jan. 15, 1987—

Engineering Initiation Awards. (Brochure NSF 86-66). Technical inquiries concerning this program should be addressed to the appropriate Engineering Division: Chemical, Biochemical, and Thermal Engineering (357-9606); Mechanics, Structures, and Materials Engineering (357-9542); Electrical, Communications, and Systems Engineering (357-9618); Design, Manufacturing, and Computer-Integrated Engineering (357-7508); Fundamental Research in Emerging and Critical Engineering Systems (357-9545); Division of Cross-Disciplinary Research (357-9707). Administrative inquiries should be made to Dr. William Butcher, Infrastructure Development, Directorate for Engineering (357-9834).

Jan. 30, 1987—

Summer Faculty Internship in Tribology. (Brochure NSF 86-36). Dr. Said Jahanmir, Tribology Program (357-9542). [P.T.34; K.W.0609000,0605000,0601100, 1003000,1009000,1013000,1006000].

TARGET DATES:

Nov. 1, 1986—

Systems Theory and Operations Research. Dr. Michael Polis (357-9618).

Quantum Electronics, Waves and Beams. Dr. Lawrence Goldberg (357-9618).

Solid State and Microstructures Engineering. Dr. Donald Silversmith (357-9618).

Instrumentation, Sensing and Measurement. Dr. Norman Caplan (357-9618).

Dec. 15, 1986—

Engineering Research Equipment Grants. (Brochure NSF 84-51). Technical inquiries concerning this program should be addressed to the appropriate Engineering division (see "Engineering Initiation Awards" above). [P.T.18; K.W.0600000].

GEO Geosciences

PROGRAM DEADLINES:

Jan. 15, 1987—

Division of Earth Sciences. Description of programs are contained in **Earth Sciences Research and NSF** (Brochure NSF 85-26).

Stratigraphy and Paleontology. Dr. William Orr (357-7806).

Surficial Processes. Dr. John Maccini (357-7866).

Crustal Structure and Tectonics. Dr. Thomas Wright (357-7915).

Seismology. Dr. John Kelleher (357-7356).

Experimental and Theoretical Geophysics. Dr. Michael Mayhew (357-7355).

Petrogenesis and Mineral Resources. Dr. Douglas Rumble, III (357-7911).

Volcanology and Mantle Geochemistry. Dr. John Snyder (357-7916).

Experimental and Theoretical Geochemistry. Dr. Alan Gaines (357-7498).

Instrumentation and Facilities. Dr. Daniel Weill (357-7807).

Continental Lithosphere. Dr. Leonard Johnson (357-7721).

TARGET DATES:

Dec. 1, 1986

Climate Dynamics. Dr. Jay Fein, Division of Atmospheric Sciences (357-9892). [P.T.34; K.W.1001000].

MPS Mathematical and Physical Sciences

PROGRAM DEADLINES:

Nov. 15, 1986—

Mathematical Sciences Postdoctoral Research Fellowships. (Brochure NSF 86-52). For applications or information contact the Special Projects Program, Division of Mathematical Sciences (357-9764). [P.T. 22; K.W.1010000].

Dec. 1, 1986—

Scientific Computing Research Equipment for the Mathematical Sciences. Special Projects Program, Division of Mathematical Sciences (357-9764).

TARGET DATES:

Nov. 1, 1986—

The Division of Materials Research has set a target date of Nov. 1, 1986, for receipt of proposals with requested start dates on or before Nov. 1, 1987, for the following programs:

Ceramics and Electronic Materials. Dr. John Hurt (357-9789).

Condensed Matter Theory. Dr. William Clinton or Dr. Purusottam Jena (357-9737).

Low Temperature Physics. Dr. William Glaberson (357-9787).

Metallurgy. Dr. Craig Hartley or Dr. Bruce MacDonald (357-9789).

Polymers. Dr. Norbert Bikales (357-9789).

Solid State Chemistry. Dr. Jack Tossell (357-9787).

Solid State Physics. Dr. Joseph Trivisonno or Dr. Paul Chu (357-9737).

Materials Research Groups. (Brochure NSF 84-67). Dr. Louis Toth or Dr. M. M. Labes (357-0114).

SEE Science and Engineering Education

PROGRAM DEADLINES:

Nov. 1, 1986—

NATO Postdoctoral Fellowships in Science. (Brochure NSF 86-42). Dr. Michael Frodyma, Division of Research Career Development (357-9466).

Nov. 7, 1986—

College Science Instrumentation Program (CSIP). (Brochure NSF 86-23). Limited to four-year colleges or universities that do not offer the doctoral degree in any of the NSF-supported fields of science and engineering. Office of College Science Instrumentation (357-7051).

Nov. 14, 1986—

Graduate Research Fellowships. (Brochure NSF 86-46). Dr. Douglas Chapin, Division of Research Career Development (357-7856). For copies of the announcement and application materials contact the Fellowship Office, National Research Council, 2101 Constitution Ave., Wash., DC 20418 (334-2872).

Minority Graduate Research Fellowships. (Brochure NSF 86-47). Dr. Douglas Chapin, Division of Research Career Development (357-7856). For copies of the announcement and application materials, contact the Fellowship Office, National Research Council, 2101 Constitution Ave., Wash., DC 20418 (334-2872).

TARGET DATES:

Dec. 1, 1986—

Informal Science Education. (Brochure NSF 85-9). Ms. Elizabeth Martin or Mr. Michael Templeton, Division of Materials Development, Research and Informal Science Education (357-7076).

STIA Scientific, Technological, and International Affairs

PROGRAM DEADLINES:

Nov. 1, 1986—

U.S.-Industrialized Countries Program for the Exchange of Scientists and Engineers and Long-Term Visits. Program supports long-term visits (6-15 months) of a postdoctoral or sabbatical nature to industrialized countries of Western Europe or the Pacific. Awards will be announced the following spring. For further information contact the Division of International Programs (357-7554).

U.S.-Latin-America and Caribbean Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Ms. Christine French, Division of International programs (357-9563). [P.T.34,42,48; K.W.1000000].

U.S.-Venezuela Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Ms. Christine French, Division of International Programs (357-9563). [P.T.34,42,48; K.W.0400000, 0600000,1000000].

U.S.-Mexico Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Ms. Christine French, Division of International Programs (357-9563). [P.T.34,42,48; K.W.0400000, 0600000,1000000].

U.S.-Brazil Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Mr. Dimas Chavez, Division of International Programs (357-9563). [P.T.34,42,48; K.W.0400000, 0600000,1000000].

U.S.-Argentina Cooperative Science. (Brochure NSF 80-52). Cooperative research (partial support), bilateral workshops and scientific visits. Foreign collaborator must submit parallel proposal to counterpart agency. Mr. Dimas Chavez, Division of International Programs (357-9563). [P.T.34,42,48; K.W.0400000, 0600000,1000000].

Nov. 15, 1986—

U.S.-Israel Binational Science Foundation (BSF). Proposals should not be submitted to NSF; send to BSF in Jerusalem. For further information contact Division of International Programs (357-7613).

Dec. 1, 1986—

Research Improvement in Minority Institutions. (Brochure NSF 84-64). Dr. Roosevelt Calbert, Division of Research Initiation and Improvement (357-7350).

Jan. 1, 1987—

U.S.-Korea Cooperative Science. (Brochure NSF 83-50). Proposals for long-term visits and cooperative research. Dr. Gerald Edwards, Division of International Programs (357-9537). [P.T.34,42,48; Loc.0112070; K.W.1002033,1003003].

Jan. 15, 1987—

U.S.-Japan Program of Cooperation in Photoconversion and Photosynthesis. (Brochure NSF 83-11). Proposals for research visits. Division of International Programs (357-9558). [P.T.34,42,48; Loc.0112070; K.W.1002033,1003003].

Research Planning Grants. Research Opportunities for Women (Brochure NSF 86-61). Dr. Margrete Klein, Division of Research Initiation and Improvement (357-7734).

Career Advancement Awards. Research Oppportunities for Women (Brochure NSF 86-61). Dr. Margrete Klein, Division of Research Initiation and Improvement (357-7734).

TARGET DATES:

Nov. 1, 1986—

U.S.-China Cooperative Science. (Brochure NSF 82-50). Cooperative research only. The program does not accept travel requests or unsolicited proposals for joint seminars and workshops. Proposals received after target date will be processed when received. Ms. Alice Hogan or Ms. Rose Bader, Division of International Programs (357-7393).

Nov. 15, 1986—

NSF-NATO Program for International Academic Industrial Exchanges of Scientists and Engineers (Double Jump). (Brochure NSF 85-5). Research visits to academic, industrial, and government research institutions in NATO countries. Six to twelve months duration. Mr. Henryk Uznanski, Division of International Programs (357-7554).

NSF-The Vatican Cooperative Science. (Brochure NSF 83-73). Research participation and scientific workshops within the framework of regional activities. Mr. Henryk Uznanski, Division of International Programs (357-7554).

POSITIONS OPEN

Applicants for the following positions should submit resumes including current salary to NSF, Personnel Administration Branch, Room 212, 1800 G Street, NW., Washington, DC 20550. Attn: Catherine Handle, 357-7840. Hearing impaired individuals should call: TDD 357-7492. NSF is an Equal Opportunity Employer.

These positions are excepted from the competitive civil service and will be filled on a permanent, 1- or 2-year rotational or temporary basis. The type of appointment is indicated in the job announcements. The per annum salary is as follows:

- **Program Director**—per annum salary ranges from $45,000 to $70,000*
- **Associate Program Director**—per annum salary ranges from $40,000 to $60,000
- **Assistant Program Director**—per annum salary ranges from $35,000 to $50,000.

*Salary currently limited by statute to $68,700.

* * * * *

- **NSF's Division of Mathematical Sciences** (MPS Directorate) is seeking qualified applicants for positions which periodically become available. Incumbents will be responsible for the planning, coordination, and management of basic research activities primarily through Federal grants and contracts to academic institutions and non-profit, non-academic research institutions. A broad, general knowledge of the field and some administrative experience are required. For technical information about the positions, contact Dr. John Polking, Division Director (357-9669).
- **NSF's Division of Biotic Systems and Resources** (BBS Directorate) is seeking qualified candidates for the following positions: program director, Population Biology and Physiological Ecology; Ecology; Systematic Biology; and associate program director, Systematic Biology. Incumbents will administer programs for basic research grant support, including advising applicants, reviewing proposals, and other administrative duties. The positions will be filled on a rotational basis for 1 or 2 years. Applicants should have a Ph.D. and/or equivalent research experience plus six years postdoctoral experience in a related discipline.

• **NSF's Division of Ocean Sciences** (GEO Directorate) is seeking qualified applicants for the positions of associate program director and program director for the Biological Oceanography program. The positions are in the excepted service and will be filled on either a permanent, rotator, or temporary basis. The program provides support for scientists primarily from academic institutions to pursue fundamental research in biological oceanography. The selected candidates will carry out program planning, proposal evaluation, administration of research grants, and liaison with other Federal agencies. Applicants should have a Ph.D. or equivalent experience in biological oceanography or a closely related biological science, and successful scientific research experience beyond the Ph.D. as follows: associate program director, 4 to 6 years; program director, 6 to 8 years. Field experience in an academic institutional program is highly desirable.

• **NSF's Division of Computer and Computation Research** (CISE Directorate) is seeking qualified applicants for the positions of assistant, associate, or program director for the following programs: Software Engineering; Computer and Computation Theory; Numeric and Symbolic Computation; and CISE Institutional Infrastructure.
The positions are in the excepted service and will be filled on a permanent basis or on a 1- or 2-year rotational or temporary basis. Alternatively, assignment will be made under the provisions of the Intergovernmental Personnel Act (IPA). Individual must be nominated by home institution for IPA assignment. Applications must be received by Dec. 31, 1986.

Applicants must have a Ph.D. or equivalent professional experience and training in computer sciences or a related field, along with successful scientific research experience beyond the Ph.D. as follows: 3 to 4 years for the assistant program director; 4 to 6 years for the associate program director; and 6 to 8 years for the program director. A broad general knowledge of computer research and some administrative experience are also required. For technical information about these positions, contact Mr. Kent Curtis, Division Director, Computer and Computation Research, (202) 357-9747 or by net mail to: CURTIS/NSF-CS.CSNET @ CSNET-RELAY.

• **NSF's Office of Engineering Infrastructure Development,** (ENG Directorate) is seeking qualified applicants for the position of program director for Women, Minority, and Handicapped programs and activities. The position is in the excepted service and will be filled on a 1- or 2-year rotator or temporary basis. The program director is responsible for developing and providing a Directorate-wide focus for activities which (1) affect one or more divisions of the Directorate for Engineering, (2) will optimize the effective use of university, industry, and other resources, and (3) will advance U.S. engineering through international cooperation. The incumbent serves as program director for ENG Directorate activities to stimulate interest in female, minority, and physically handicapped individuals and encourage them to pursue careers in engineering research and education. Applicants should have a Ph.D. or equivalent experience in engineering or science. Also required are 6 to 8 years of successful research experience beyond the Ph.D., demonstrating a knowledge of issues concerning the underrepresentation of women, minorities, and the handicapped in engineering.

* * * * *

Applicants for the following positions should contact Margaret Cademartori on 357-7601 to request vacancy announcements containing complete qualification requirements and application procedures. Hearing impaired individuals may call TDD 357-7492. Applications should be submitted to NSF, Executive Personnel and Development Section, Attn: Margaret Cademartori.

• **NSF's Directorate for Computer and Information Science and Engineering** (CISE) is seeking qualified applicants for the position of director, Division of Information, Robotics, and Intelligent Systems. The Division includes programs in Knowledge and Database Systems, Robotics and Machine Intelligence, Interactive Systems, and Information Impact. Appointment to this Senior Executive Service position may be on a career basis or a 1- to 3-year limited term basis, with a current salary ranging from $61,296 (ES-1) to $68,700 (ES-4). Alternatively, assignment may be made under provisions of the Intergovernmental Personnel Act. Applicants must have a Ph.D. or equivalent professional experience in a field related to the purview of the Division. Other requirements include substantial research contributions or leadership in research administration in a field related to the Division (i.e., the information, computer, and mathematical sciences, linguistics, economics, psychology, robotics and artificial intelligence) and, ability to achieve organizational objectives through supervision and management of subordinate professional and support staff. Application deadline: Jan. 15, 1987.

• **NSF's Directorate for Mathematical and Physical Sciences** (MPS) is seeking qualified applicants for the position of director, Division of Mathematical Sciences. The Division includes programs in Algebra and Number Theory, Applied Mathematics, Classical Analysis, Modern Analysis, Statistics and Probability, Topology and Foundations, Geometric Analysis, and Special Projects. Appointment to this Senior Executive Service position may be on a career or a 1- to 3-year limited-term basis with a current salary ranging from $61,296 (ES-1) to $68,700 (ES-4). Alternatively, assignment may be made under the provisions of the Intergovernmental Personnel Act.

Applicants must have a Ph.D. or equivalent professional experience in the mathematical sciences or related field. Recognized professional standing and substantial research administrative experience are also essential. Applications must be received by Jan. 9, 1987.

STAFF CHANGES

Sunit Addy to Associate Program Director, Marine Geology and Geophysics Program, Division of Ocean Sciences, 357-7312.

Win Aung to Acting Director, Division of Mechanics, Sructures and Materials Engineering, 357-9542.

Patricia Anderson to Assistant Program Director, Developmental Neural Science Program, 357-7042, and Molecular and Cellular Neurobiology Program, 357-7471, Division of Behavioral and Neural Sciences.

Charles H. Dickens to Head, Surveys and Analysis Section, Division of Science Resources Studies, 634-4619.

Jacob Hautaluoma to Program Director, Scandinavian Programs, Division of International Programs, 357-9700.

Leonard L. Lederman to Head, Special Analytical Studies Section, Division of Science Resources Studies, 634-4625.

Steven Price to Program Director, Sensory Physiology and Perception, Division of Behavioral and Neural Sciences, 357-7428.

Louise A. Raphael to Associate Program Director, Teacher Enhancement Program, Division of Teacher Preparation and Enhancement, 357-7074.

Willem T.H. van Oers to Program Director, Intermediate Energy Nuclear Physics, Division of Physics, 357-7992.

Harvey B. Willard to Director, Division of Physics, 357-7985.

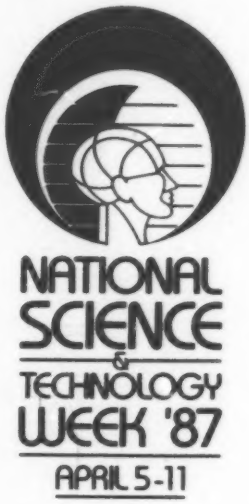
Michael J. Wozny to Director, Division of Design, Manufacturing, and Computer-Integrated Engineering, 357-7508.

November 1986 Publications Order Form

Single copies of the following publications are available by checking appropriate boxes. This Order Form and requests for other publications should be sent to Forms and Publications Unit, Room 232, National Science Foundation, 1800 G St., N.W., Washington, DC 20550.

Check:

- ☐ NSF 80-52 U.S.-Latin America and Caribbean Cooperative Science.
- ☐ NSF 82-50 U.S.-China Cooperative Science.
- ☐ NSF 83-11 U.S.-Japan Program for Cooperation in Photoconversion and Photosynthesis.
- ☐ NSF 83-19 Biological Instrumentation.
- ☐ NSF 83-50 U.S.-East Asia Cooperative Science.
- ☐ NSF 83-57 Grants for Scientific and Engineering Research.
- ☐ NSF 83-73 Cooperative Science Programs with Western Europe.
- ☐ NSF 83-82 Support for Systematic Anthropological Collections.
- ☐ NSF 84-51 Engineering Research Equipment Grants.
- ☐ NSF 84-64 Research Improvement in Minority Institutions.
- ☐ NSF 84-67 Materials Research Groups.
- ☐ NSF 85-5 NSF-NATO Exchange for International Academic-Industrial Exchange of U.S. Scientists (Double Jump).
- ☐ NSF 85-9 Informal Science Education.
- ☐ NSF 85-11 Division of Cellular Biosciences (Flyer).
- ☐ NSF 85-26 Earth Sciences Research and NSF.
- ☐ NSF 85-47 Equipment and Facilities for Research at Terrestrial and Freshwater Biological Field Stations.
- ☐ NSF 85-54 Research Opportunities for Women, 1986.
- ☐ NSF 85-55 Behavioral and Neural Sciences.
- ☐ NSF 85-56 Molecular Biosciences.
- ☐ NSF 86-1 FY 1985 NSF Annual Report
- ☐ NSF 86-18 Publications of the National Science Foundation
- ☐ NSF 86-20 Division of Biotic Systems and Resources (Flyer).
- ☐ NSF 86-23 College Science Instrumentation.
- ☐ NSF 86-27 Directory of Awards, Science and Engineering Education, FY 1984-85.
- ☐ NSF 86-36 Summer Faculty in Tribology.
- ☐ NSF 86-40 Guide to Programs.
- ☐ NSF 86-42 NATO Postdoctoral Fellowships in Science.
- ☐ NSF 86-46 Graduate Research Fellowships.
- ☐ NSF 86-47 Minority Graduate Research Fellowships.
- ☐ NSF 86-48 Ethics and Values Studies.
- ☐ NSF 86-52 Mathematical Sciences Postdoctoral Research Fellowships.
- ☐ NSF 86-54 Chemistry at the Interface of Chemistry and Biology.
- ☐ NSF 86-58 Materials Chemistry: Research at the Interface of Chemistry and Materials Research.
- ☐ NSF 86-61 Research Opportunities for Women, 1987.
- ☐ NSF 86-66 Engineering Initiation Awards.



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Bulletin

Vol. 14, No. 4, December 1986

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NSF Announcements for December 1986

The *NSF Bulletin* provides monthly news about NSF programs, deadline dates, publications, meetings, and sources for more information.

(Telephone numbers are given in parentheses; all numbers are the Washington, DC, area code 202, unless otherwise indicated.)

NSF Student Travel Award

In FY 1987 NSF will grant up to 200 travel awards, consisting of round-trip economy air tickets, to enable outstanding U.S. graduate and recent postdoctoral students to attend NATO Advanced Study Institutes (ASI) held in Europe. Graduate students nearing completion of their doctoral studies are particularly encouraged to look into the opportunities for professional growth afforded by Institutes dealing with their research specialties.

Further information about these awards, as well as the schedule of 1987 ASI's, is available through NSF's Division of Science Resources Studies' Remote Bulletin Board System. To access this system: call 202/634-1764; parameters are 300 or 1200 baud, no parity, 8 data bits, 1 stop bit. For additional Bulletin Board assistance call 634-4636. An annual list of ASI's is also published in the final January issues of *"Nature," "La Recherche," "Science,"* and *"New Scientist."*

The Advanced Study Institute Travel Awards Program is an activity of NSF's Division of Research Career Development (357-7536).

Multi-Investigator Multi-Disciplinary Proposals for Ecosystem Studies

Researchers submitting proposals for the Ecosystem Studies program, Division of Biotic Systems and Resources, should follow these guidelines:

Proposals should be limited to 60 double-spaced pages for the body of the research proposition (i.e., introduction, literature review, hypothesis exposition, methods, project execution and management plan). Appendices of supporting materials (e.g., bibliographies, budgets, professional resumes, catalogs of extant information and related research efforts) should be limited to 40 single-spaced pages. Proposals should be printed on one side only, numbered at the bottom, and secured only in the top left corner.

Proposals for studies involving only one or two investigators/disciplines must comply with the limitations (i.e., 30 double-spaced pages of text) expressed in *Grants for Scientific and Engineering Research* (NSF 83-57). For this class of proposals, the total pages for appendices must not exceed 15 single-spaced pages.

General format requirements (NSF 83-57) apply to all proposals.

Proposals not adhering to these guidelines will be returned. Contact Dr. James Callahan, Associate Program Director for Ecosystem Studies, for further information (357-9596).

Alan T. Waterman Award Nominations

The deadline for receipt of nominations for the 1987 Alan T. Waterman Award is Dec. 31, 1986. The Award, presented annually to an outstanding young scientist, mathematician, or engineer, will be announced and presented in May 1987. For further information and/or a copy of the guidelines for submission, contact Mrs. Lois Hamaty, NSB, 357-7512.

Doctoral Dissertation Research Proposals for Division of Biotic Systems and Resources

The following target dates are established for doctoral dissertation proposals submitted for consideration by the Division of Biotic Systems and Resources: proposals received by May 1 will be considered for start dates of Oct. 15 or later in the same calendar year; proposals received by Oct. 15 will be considered for start dates of May 1 or later during the following calendar year. Each proposal should be submitted through regular university channels by the dissertation advisor acting on behalf of a graduate student, and may be submitted while the student is completing other requirements for the doctorate. Only students enrolled at U.S. institutions are eligible. Academic departments should limit the applications submitted to outstanding dissertation proposals with unusual financial requirements that cannot be met by the university.

The proposal should follow the format for individual research grants as described in the brochure *Grants for Scientific and Engineering Research* (NSF 83-57), except that the body of the proposal is limited to eight single-spaced pages. The body should include: (a) a description of the scientific significance of the work and the design of the project in sufficient detail to permit evaluation; (b) a presentation and interpretation of progress to date, if the research is already underway; (c) a statement of the items for which funds are requested and their estimated costs, with an explanation of their necessity for the research; and (d) a schedule for the research, including the date funds will be required. The original and eight copies should be sent to the Data Support Services Section, NSF.

For further information, contact Dr. James Edwards, Division of Biotic Systems and Resources (357-7475).

Antarctic Research Report

The National Research Council has issued a report listing 10 antarctic scientific issues that are likely to continue beyond 2000 A.D. The report was prepared by the Polar Research Board (National Research Council) at the request of NSF's Division of Polar Programs.

Areas of research highlighted in the report include ice core studies, biological and physical processes in the ice-edge zone; marine studies of the continental margins; atmospheric sciences at the South Pole; west antarctic geophysics and ice dynamics; swarming behavior of krill; adaptations of biota; mapping; and geophysical monitoring.

Single copies of the 35-page report, *U.S. Research in Antarctica in 2000 A.D. and Beyond — A Preliminary Assessment,* may be obtained from the Polar Research Board, 2101 Constitution Ave., NW, Wash., DC 20418 (202/334-3479).

January 1987 NSB Meeting

The National Science Board will hold its January meeting on the 15th and 16th in the Board Room (Room 540) of NSF. Portions of the meeting will be open to the public. Requests for information on the meeting, the schedule, or agendas may be directed to the Office of the National Science Board (357-9582).

NSF Equipment Programs

Chemical Instrumentation. (Brochure NSF 86-17). Division of Chemistry (357-7499).

Biological Instrumentation. (Brochure NSF 83-19). Division of Molecular Biosciences; Division of Cellular Biosciences (357-7652).

Instrumentation for Materials Research. (Brochure NSF 85-66). Division of Materials Research (357-7570).

Equipment Grants for Computer Research. (Brochure NSF 85-64). Division of Computer Research (357-7349).

Engineering Research Equipment Grants. (Brochure NSF 84-51). Engineering (357-9834).

College Science Instrumentation. (Brochure NSF 86-23). Science and Engineering Education (357-7051).

Research in Undergraduate Institutions. (Brochure NSF 85-59). Division of Research Initiation and Improvement (357-7456).

Science Computing Research Equipment for Mathematical Sciences. (Brochure NSF 85-44). Division of Mathematical Sciences (357-9764).

Earth Sciences Research Equipment. (Brochure NSF 85-26). Division of Earth Sciences (357-7498).

Facilitation Awards for Handicapped Scientists and Engineers. (Brochure NSF 84-62). Division of Research Initiation and Improvement (357-7456).

Ocean Sciences Instrumentation; Oceanographic Instrumentation; Shipboard Science Support Equipment. (Brochure NSF 84-63). Division of Ocean Sciences (357-7837).

Joint Mathematical Society/ Association Meeting

The joint meeting of the American Mathematical Society-Mathematical Association of America will be held in San Antonio, TX, Jan. 21-25, 1987. An NSF exhibit and representative will be present at the meeting. NSF contact is Dr. Judith Sunley, Division of Mathematical Sciences (357-9669).

Program Name Changed

The Decision and Management Science Program in the Division of Social and Economic Science has been changed to Decision, Risk, and Management Science. For further information call 357-7569.

Bulletin

NATIONAL SCIENCE FOUNDATION, WASHINGTON, D.C. 20550

Erich Bloch, Director

John Moore, Deputy Director

The **NSF Bulletin** is issued monthly (except July and August). Use of funds for printing this periodical has been approved by the Office of Management and Budget through March 31, 1991.

Editor: Doris Merida, Office of Legislative and Public Affairs (357-9498).

Program Deadlines and Target Dates for Proposals

The following listing gives key dates on which proposals for grants are due at NSF for the next three months. The dates listed are subject to change. Further information may be obtained by contacting the NSF staff members listed for each entry. Brochures indicated in parentheses may be requested on the Publications Order Form, unless otherwise indicated.

The Foundation welcomes proposals on behalf of all qualified scientists and engineers, and strongly encourages women, minorities, and handicapped persons to compete fully in any of the research and research-related programs described in this document.

The number and letter codes after some announcements refer to listings in the publication *Keyword Thesaurus*. They will be used by the research management offices of participating colleges and universities in an attempt to achieve more complete and efficient distribution of *NSF Bulletin* information to potential users.

Program Deadlines: **Proposals received after these cutoff dates generally will be returned to the proposer.**
Target Dates: **Proposals received after these cutoff dates will be reviewed, although they may miss a particular panel meeting.**

* * * * *

NSF programs not listed under "program deadlines" and "target dates" will accept proposals any time of the year. It takes approximately six months to process a proposal.

* * * * *

BBS Biological, Behavioral, and Social Sciences

PROGRAM DEADLINES:

Jan. 2, 1987—

Terrestrial and Freshwater Biological Field Stations Special Competition. (Brochure NSF 85-47). Dr. James Edwards, Division of Biotic Systems and Resources (357-7475).

Jan. 12, 1987—

Postdoctoral Research Fellowships in Plant Biology. Dr. H.T. Huang, Division of Molecular Biosciences (357-9782), Dr. Phyllis Cahn, Division of Cellular Biosciences (357-0127).

TARGET DATES:

Dec. 1, 1986—

Biochemistry. (Brochure NSF 85-56). Dr. H.T. Huang or Mrs. Estella Engel, Division of Molecular Biosciences (357-7945).

Biological Instrumentation. (Brochures NSF 85-56 and 83-19). Dr. John Wooley or Dr. Edward Zapolski, Division of Molecular Biosciences (357-7652).

Metabolic Biology. (Brochure NSF 85-56). Dr. William Robertson or Ms. Carter Kimsey, Division of Molecular Biosciences (357-7987).

Prokaryotic Genetics. (Brochure NSF 85-56). Dr. Phillip Harriman or Dr. Marcus Rhoades, Division of Molecular Biosciences (357-9687).

Biophysics. (Brochure NSF 85-56). Dr. Arthur Kowalsky, Dr. Patricia Jost, or Ms. Brenda Flam, Division of Molecular Biosciences (357-7777).

Dec. 16, 1986—

Ecology. Dr. Patrick Flanagan, Division of Biotic Systems and Resources (357-9734). [P.T.34; K.W.1002016].

Population Biology and Physiological Ecology. Dr. John Brooks, Division of Biotic Systems and Resources (357-9728). [P.T.34; K.W.1007001,0413004].

Ecosystem Studies. Dr. Jerry Melillo, Division of Biotic Systems and Resources (357-9596).

Jan. 1, 1987—

Systematic Anthropological Collections. (Brochure NSF 83-82). Ms. Mary Greene, Division of Social and Economic Science (357-7804).

Social and Developmental Psychology. (Brochure NSF 85-55). Dr. Jean Intermaggio, Division of Behavioral and Neural Sciences (357-9485). [P.T.34; K.W.0414006,0414014].

Jan. 15, 1987—

Economics. Dr. James Blackman, Dr. Daniel Newlon, or Dr. Lynn Pollnow, Division of Social and Economic Science (357-9674). [P.T.34; K.W.0408000].

Geography and Regional Science. Dr. Ronald Abler or Dr. Sonja Sperlich, Division of Social and Economic Science (357-7326). [P.T.34; K.W.0409000].

History and Philosophy of Science. Dr. Ronald Overmann or Dr. Sara Nerlove, Division of Social and Economic Science (357-9677). [P.T.34; K.W.0309008].

Law and Social Sciences. Dr. Felice Levine or Dr. Sonja Sperlich, Division of Social and Economic Science (357-9567). [P.T.34; K.W.0901026].

Decision and Management Science. Dr. Arie Lewin or Dr. Vincent Covello, Division of Social and Economic Science (357-7417). [P.T.34; K.W.0901026].

Measurement Methods and Data Improvement. Dr. Murray Aborn or Dr. Sara Nerlove, Division of Social and Economic Science (357-7913). [P.T.34; K.W.0417004].

Sociology. Dr. Mark Abrahamson or Dr. Stanley Presser, Division of Social and Economic Science (357-7802). [P.T.34; K.W.0417000].

Political Science. Dr. Frank Scioli, Jr. or Dr. Lee Sigelman, Division of Social and Economic Science (357-9406).

Systematic Biology. Dr. James Rodman, Division of Biotic Systems and Resources (357-9588). [P.T.34; K.W.1002011].

Integrative Neural Systems. (Brochure NSF 85-55). Dr. Nathaniel Pitts, Division of Behavioral and Neural Sciences (357-7040).

Molecular and Cellular Neurobiology. (Brochure NSF 85-55). Dr. Stephen Morris or Dr. Patricia Anderson, Division of Behavioral and Neural Sciences (357-7471).

Developmental Neuroscience. (Brochure NSF 85-55). Dr. Frank Collins or Dr. Patricia Anderson, Division of Behavioral and Neural Sciences (357-7042). [P.T.34; K.W.0414012].

Sensory Physiology and Perception. (Brochure NSF 85-55). Dr. Carol Welt or Dr. Christopher Platt, Division of Behavioral and Neural Sciences (357-7428). [P.T.34; K.W.0414011].

Psychobiology. (Brochure NSF 85-55). Dr. Fred Stollnitz or Dr. Mary Ann Ottinger, Division of Behavioral and Neural Sciences (357-7949). [P.T.34; K.W.0414012].

Feb. 1, 1987—

Cell Biology. (Brochure NSF 85-11). Dr. Edward Berger or Dr. Eve Briles, Division of Cellular Biosciences (357-7474). [P.T.34; K.W.1003002].

Cellular Physiology. (Brochure NSF 85-11). Dr. Maryanna Henkart or Dr. Barbara Zain, Division of Cellular Biosciences (357-7377). [P.T.34; K.W.1003002].

Developmental Biology. (Brochure NSF 85-11). Dr. Joseph Mascarenhas or Dr. Judith Plesset, Division of Cellular Biosciences (357-7989). [P.T.34; K.W.1003002].

Eukaryotic Genetics. (Brochure NSF 85-11). Dr. DeLill Nasser, Division of Cellular Biosciences (357-0112). [P.T.34; K.W.1003002].

Regulatory Biology. (Brochure NSF 85-11). Dr. Stephen Bishop or Dr. Elvira Doman, Division of Cellular Biosciences (357-7975). [P.T.34; K.W.1003002].

Linguistics. (Brochure NSF 85-55). Dr. Paul Chapin, Division of Behavioral and Neural Sciences (357-7696). [P.T.34; K.W.0410000].

Memory and Cognitive Processes. (Brochure NSF 85-55). Dr. Joseph Young, Division of Behavioral and Neural Sciences (357-9898). [P.T.34; K.W.0414005].

Ethics and Values Studies. Dr. Rachelle Hollander, Office of Interdirectorate Research Coordination (357-9894).

CISE Computer and Information Science and Engineering

PROGRAM DEADLINES:

Feb. 1, 1987—

Operations and Management of NSFnet. Dr. Stephen Wolff, Networking, Office of Advanced Scientific Computing (357-9717).

Feb. 15, 1987—

Supercomputing Summer Training Institute. Dr. Lawrence Brandt, Centers, Office of Advanced Scientific Computing (357-9776).

ENG Engineering

PROGRAM DEADLINES:

Jan. 15, 1987—

Engineering Initiation Awards. (Brochure NSF 86-66). Technical inquiries concerning this program should be addressed to the appropriate Engineering Division: Chemical, Biochemical, and Thermal Engineering (357-9606); Mechanics, Structures, and Materials Engineering (357-9542); Electrical, Communications, and Systems Engineering (357-9618); Design, Manufacturing, and Computer-Integrated Engineering (357-7508); Fundamental Research in Emerging and Critical Engineering Systems (357-9545); Division of Cross-Disciplinary Research (357-9707). Administrative inquiries should be made to Dr. William Butcher, Infrastructure Development, Directorate for Engineering (357-9834).

Jan. 30, 1987—

Summer Faculty Internship in Tribology. (Brochure NSF 86-36). Dr. Said Jahannir, Tribology Program (357-9542). [P.T.34; K.W.0609000,0605000,0601100,1003000, 1009000,1013000,1006000].

Feb. 27, 1987—

Lightwave Technology. Dr. T.K. Gustafson, Lightwave Technology (357-7955).

Biotechnology. Dr. Fred Heineken, Biotechnology (357-9545).

TARGET DATES:

Dec. 15, 1986—

Engineering Research Equipment Grants. (Brochure NSF 84-51). Technical inquiries concerning this program should be addressed to the appropriate Engineering division (see "Engineering Initiation Awards" above). [P.T.18; K.W.0600000].

Feb. 28, 1987—

Division of Electrical, Communications, and Systems Engineering (357-9618). Technical inquiries should be addressed to the appropriate program director:

Quantum Electronics, Waves and Beams: Dr. Lawrence Goldberg;

Solid State and Microstructures Engineering: Dr. Donald Silversmith;

Systems Theory and Operations Research: Dr. Michael Polis;

Instrumentation, Sensing, and Measurement: Dr. George Hazelrigg.

GEO Geosciences

PROGRAM DEADLINES:

Jan. 15, 1987—

Division of Earth Sciences. Description of programs are contained in *Earth Sciences Research and NSF* (Brochure NSF 85-26).

Stratigraphy and Paleontology. Dr. William Orr (357-7806).

Surficial Processes. Dr. John Maccini (357-7866).

Crustal Structure and Tectonics. Dr. Thomas Wright (357-7915).

Seismology. Dr. John Kelleher (357-7356).

Experimental and Theoretical Geophysics. Dr. Michael Mayhew (357-7355).

Petrogenesis and Mineral Resources. Dr. Douglas Rumble, III (357-7911).

Volcanology and Mantle Geochemistry. Dr. John Snyder (357-7916).

Experimental and Theoretical Geochemistry. Dr. Alan Gaines (357-7498).

Instrumentation and Facilities. Dr. Daniel Weill (357-7807).

Continental Lithosphere. Dr. Leonard Johnson (357-7721).

TARGET DATES:

Dec. 1, 1986—

Climate Dynamics. Dr. Jay Fein, Division of Atmospheric Sciences (357-9892). [P.T.34; K.W.1001000].

Feb. 1, 1987—

Biological Oceanography, Chemical Oceanography, Marine Geology and Geophysics, Physical Oceanography. Dr. Michael Reeve, Division of Ocean Sciences (357-7924). [P.T.34; K.W.1008000].

Ocean Drilling Program, U.S. Science. Dr. Richard Buffler, Division of Ocean Sciences (357-9849).

Ocean Sciences Instrumentation Development. (Brochure NSF 84-63). "Instructions for Preparation of Proposals Requesting Support for Oceanographic Facilities." Mr. H. Lawrence Clark, Division of Ocean Sciences (357-7837). [P.T.18; K.W.1008003].

MPS Mathematical and Physical Sciences

PROGRAM DEADLINES:

Dec. 1, 1986—

Scientific Computing Research Equipment for the Mathematical Sciences. Special Projects Program, Division of Mathematical Sciences (357-9764).

SEE Science and Engineering Education

TARGET DATES:

Dec. 1, 1986—

Informal Science Education. (Brochure NSF 85-9). Ms. Elizabeth Martin or Mr. Michael Templeton, Division of Materials Development, Research and Informal Science Education (357-7076).

Feb. 1, 1987—

Teacher Enhancement. Dr. Fred Johnson, Dr. Vincent Lunetta, or Dr. Charles Puglia (357-7539). Mr. Rodney Mansfield (357-7074). Division of Teacher Preparation and Enhancement.

Instructional Materials Development. (Brochure NSF 85-10). Ms. Mary Kohlerman or Ms. Alice Moses, Division of Materials Development, Research, and Informal Science Education (357-7066).

STIA Scientific, Technological, and International Affairs

PROGRAM DEADLINES:

Dec. 1, 1986—

Research Improvement in Minority Institutions. (Brochure NSF 84-64). Dr. Roosevelt Calbert, Division of Research Initiation and Improvement (357-7350).

Jan. 1, 1987—

U.S.-Korea Cooperative Science. (Brochure NSF 83-50). Proposals for long-term visits and cooperative research. Dr. Gerald Edwards, Division of International Programs (357-9537). [PT.34,42,48; Loc.0112070; K.W.1002033,1003003]

Jan. 15, 1987—

U.S.-Japan Program of Cooperation in Photoconversion and Photosynthesis. (Brochure NSF 83-11). Proposals for research visits. Division of International Programs (357-9558). [PT.34,42,48; Loc.0112070; K.W.1002033,1003003].

Research Planning Grants. Research Opportunities for Women (Brochure NSF 86-61). Dr. Margrete Klein, Division of Research Initiation and Improvement (357-7734).

Career Advancement Awards. Research Oppportunities for Women (Brochure NSF 86-61). Dr. Margrete Klein, Division of Research Initiation and Improvement (357-7734).

Program for the Analysis of Science and Technology Resources. (Brochure NSF 85-50). Annual deadline for proposals for research grants to investigate the outputs and socioeconomic impacts of science and technology. Dr. Donald Buzzelli, Division of Science Resources Studies (634-4682).

■ POSITIONS OPEN

Applicants for the following positions should submit resumes including current salary to NSF, Personnel Administration Branch, Room 208, 1800 G Street, NW., Washington, DC 20550. Attn: Catherine Handle, 357-7840. Hearing impaired individuals should call: TDD 357-7492. NSF is an Equal Opportunity Employer.

These positions are excepted from the competitive civil service and will be filled on a permanent, 1- or 2-year rotational or temporary basis. The type of appointment is indicated in the job announcements. The per annum salary is as follows:

- **Program Director**—per annum salary ranges from $45,000 to $70,000*
- **Associate Program Director**—per annum salary ranges from $40,000 to $60,000
- **Assistant Program Director**—per annum salary ranges from $35,000 to $50,000

* Salary currently limited by statute to $68,700

* * * * *

- **NSF's Division of Social and Economic Science** (BBS Directorate) is seeking qualified applicants for a position as program director, Geography and Regional Science, under the provisions of NSF's Rotator Program or Intergovernmental Personnel Act. Applicants should have a Ph.D., and at least six years of independent research experience. Since responsibilities include research proposal evaluation, budget development and scientific planning, broad knowledge and specific research accomplishments are key experiential factors. Some administrative experience is also desired. This position will be filled on a two-year rotational basis, beginning summer, 1987. Applicants should send resumes indicating current salary to: NSF, Personnel Administration Branch. For technical information call Dr. Roberta Balstad Miller, Director, Division of Social and Economic Science (357-7966).

- **NSF's Division of Computer and Computation Research** (CISE Directorate) is seeking qualified applicants for the positions of assistant, associate, or program director for the following programs: Software Engineering; Computer and Computation Theory; Numeric and Symbolic Computation; and CISE Institutional Infrastructure. The positions are in the excepted service and will be filled on a permanent basis or on a one- or two-year rotational or temporary basis. Alternatively, assignment will be made under the provisions of the Intergovernmental Personnel Act (IPA). Individual must be nominated by home institution for IPA assignment. Applications must be received by Dec. 31, 1986.

Applicants must have a Ph.D. or equivalent professional experience and training in computer sciences or a related field; and successful scientific research experience beyond the Ph.D. as follows: three to four years for the assistant program director; four to six years for the associate program director; and six to eight years for the program director. A broad general knowledge of computer research and some administrative experience are also required. For technical information about these positions, contact Mr. Kent Curtis, Division Director, Computer and Computation Research (357-9747) or by net mail to: CURTIS/NSF-CS.CSNET@CSNET-RELAY.

• **NSF's Office of Engineering Infrastructure Development** (ENG Directorate) is seeking qualified applicants for the position of program director for Women, Minority, and Handicapped Programs and Activities. The position is in the excepted service and will be filled on a one- or two-year rotational or temporary basis. The program director is responsible for developing and providing a Directorate-wide focus for activities which impact on one or more of the divisions of the Directorate for Engineering and which will optimize the effective utilization of university, industry, and other resources, and for activities which will advance U.S. engineering through international cooperation. The incumbent serves as program director for Engineering Directorate activities to stimulate interest in and encourage women, minority, and physically handicapped individuals to pursue a career in engineering research and education. Applicants should have a Ph.D or equivalent experience in engineering or science. An additional requirement is six to eight years of successful research experience beyond the Ph.D. which demonstrates a knowledge of issues concerning the underrepresentation of women, minorities, and the handicapped in engineering. Demonstrated work experience and publications on the issues confronting women, minorities, and the handicapped in engineering is also required.

• **NSF's Division of Mathematical Sciences** (MPS Directorate) is seeking qualified applicants for positions which periodically become available. Incumbents will be responsible for the planning, coordination, and management of basic research activities primarily through Federal grants and contracts to academic institutions and non-profit, non-academic research institutions. A broad, general knowledge of the field and some administrative experience are required. For technical information about the positions, contact Dr. John Polking, Division Director (357-9669).

* * * * *

Applicants for the following positions should contact Margaret Cademartori on 357-7601 to request vacancy announcements containing complete qualification requirements and application procedures. Hearing impaired individuals may call TDD 202/357-7492. Applications should be submitted to NSF, Executive Personnel and Development Section, Room 208, 1800 G St., NW., Wash., DC 20550, Attn: Margaret Cademartori.

• **NSF's Directorate for Computer and Information Science and Engineering** (CISE) is seeking qualified applicants for the position of director, Division of Information, Robotics, and Intelligent Systems. The Division includes programs in Knowledge and Database Systems, Robotics and Machine Intelligence, Interactive Systems, and Information Impact. Appointment to this Senior Executive Service position may be on a career or a one- to three-year limited term basis with a current salary ranging from $61,296 (ES-1) to $68,700 (ES-4). Alternatively, assignment may be made under provisions of the Intergovernmental Personnel Act. Applicants must have a Ph.D. or equivalent professional experience in a field related to the purview of the Division. Other requirements include substantial research contributions or leadership in research administration in a field related to the Division (i.e., the information, computer, and mathematical sciences, linguistics, economics, psychology, robotics and artificial intelligence); and ability to achieve organizational objectives through supervision and management of subordinate professional and support staff. Applications must be received by Jan. 15, 1987.

• **NSF's Directorate for Mathematical and Physical Sciences** (MPS) is seeking qualified applicants for the position of director, Division of Mathematical Sciences. The Division includes programs in Algebra and Number Theory, Applied Mathematics, Classical Analysis, Modern Analysis, Statistics and Probability, Topology and Foundations, Geometric Analysis and Special Projects. Appointment to this Senior Executive Service position may be on a career or a one- to three-year limited term basis with a current salary ranging from $61,296 (ES-1) to $68,700 (ES-4). Alternatively, assignment may be made under the provisions of the Intergovernmental Personnel Act.

Applicants must have a Ph.D. or equivalent professional experience in the mathematical sciences or related field. Recognized professional standing and substantial research administrative experience are also essential. Applications must be received by Jan. 9, 1987.

STAFF CHANGES

Robert M. Andersen to Deputy General Counsel, Office of the General Counsel, 357-9438.

Myron J. Atkins to Senior Advisor, Directorate for Science and Engineering Education, 357-9522.

Bernard Chern to Director, Division of Microelectronic Information Processing Systems, 357-7373.

Yi-Tzuu Chien to Acting Director, Division of Information, Robotics, and Intelligent Systems, 357-9572.

Kunmo T. Chung to Deputy Director, Division of Electrical, Communications and Systems Engineering, 357-9618.

John W. Connolly to Director, Division of Advanced Scientific Computing, 357-7558.

Kent K. Curtis to Director, Division of Computer and Computation Research, 357-9747.

Arthur F. Findeis to Head, Special Projects Office, Division of Chemistry, 357-7503.

John Lehmann to Program Director Microelectronic Systems Architecture, Division of Microelectronic Information Processing Research, 357-7853.

John A. Thorpe to Deputy Director, Division of Materials Development, Research and Informal Science Education, 357-7452.

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